INSTITUTIONS OF INTELLIGENCE

By Bertram Morris

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Reviewing the challenges to organized civil life of threatening forces from within and without, Mr. Morris seeks to define the ways in which the inherited information necessary to ensure society's continued existence and development is transmitted from generation to generation. The importance of the role that Mr. Morris assigns to "institutions of intelligence" derives from the characteristics that enable these institutions to fulfil our complex society's need for both stability and innovation: (*a*) reliance upon inferential beliefs, (*b*) consolidation of social activities, and (*c*) perpetuation of a fruitful life through the promise of a sufficiently flexible community.

Moving from a discussion of the primitive arts to those sophisticated arts so characteristic of the present, Mr. Morris dwells upon science and technology as the primary formative factors of contemporary society. Science, as an institution of intelligence, not only makes ever insistent demands upon us but also holds out ever greater promise of contributions to the formation of a more authentic cultural life. Through the institution of technology, the discoveries of science affect the practical activities of the common man.

Primarily concerned with redefining the educational needs of our technological age, Mr. Morris insists that our educational institutions can take advantage of these potentials only by radically reorienting themselves to them. Accordingly, he maps out stages from the early beginnings of learning through the stages of higher education and after when opportunities should be eagerly seized to advance the practical arts and to free the human spirit in the more completely liberative arts: aesthetic, religious, and philosophical.

(Continued on back flap)

Studies in Educational Theory
of the John Dewey Society **NUMBER 6**

Institutions of Intelligence

The Commission on Studies in Educational Theory
Appointed by the John Dewey Society

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Institutions of Intelligence

by BERTRAM MORRIS

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To Joseph W. Cohen, My Teacher

Foreword

The publication of this analysis by an established scholar in American philosophy represents the completion of an intellectual trilogy comprised of Numbers 4, 5, and 6 in this series sponsored by the John Dewey Society. Each of the three studies selected has focused upon one of the approaches to educational theory that have become increasingly significant since mid-century: linguistic analysis, existentialism, and philosophical anthropology.

The first of these volumes to appear, *The Place of Reason in Education* by Bertram Bandman (Number 4 in the series), was intended to show the relevance of analytic philosophy to educational theory. In the same year, Kenneth Winetrout's *F. C. S. Schiller and the Dimensions of Pragmatism* represented a re-evaluation of pragmatism and its relevance to existential philosophies. The author of the present volume, Bertram Morris is now concerned with applying philosophical anthropology to educational theory.

Intelligence can be considered a social phenomenon and an instrument of culture, as well as a possession of individuals. Among the institutions of man created out of the matrix of human cultural experience are those concerned primarily with safeguarding and nurturing intelligence; such institutions of intelligence are intended to preserve and order that aspect of civilization concerned with developing the minds of men. To such an important but relatively ignored perspective on educational theory Professor Morris here addresses himself.

The book was written expressly for the John Dewey Society in response to an invitation extended by the Commission on Studies in Educational Theory. Although all members of the Commission have reacted to earlier drafts of the work in progress, Professor Frederick Ellis worked most intensively with Dr. Morris and represented the Commission in the earliest stages of planning.

ROBERT MASON

University of Pittsburgh
July 10, 1968

Preface

In one sense the grave issues of society are the same today as they have ever been: to transform the spurious and disfunctional elements of social life into authentic and functional elements. In another sense our times have advanced human intelligence in ways such as to create problems for which there is no parallel in former times. With the advent of modern science and its application to virtually every kind of human endeavor, we have come to see institutions develop that have the promotion of man's intelligence as their chief end. A peculiarity of this innovation is that man has altered both the world and himself. He has changed his environment and he has changed himself too—his needs, his outlook, his mode of life. There is reason, therefore, to turn attention to his new predicaments and to his prospects for a genuine society.

To understand what has happened and what men can do to reorient themselves to what has happened, I have here concerned myself with institutions of intelligence, primarily in terms of the impact of science and technology on modern so-

ciety and secondarily in terms of the role schools and universities can play so that men can accommodate themselves to science and technology and the practical arts derivative from them.

Were it not for the prodding and stimulus of my friend Professor George E. Axtelle, I should not have engaged in this venture. Because of what he initiated, I have further enjoyed a most gratifying relationship with the members of the Commission on Studies in Educational Theory of the John Dewey Society: Professors Robert E. Mason, Chairman; Frederick Ellis; Ward Madden; and Israel Scheffler. They have generously made helpful suggestions for revision of my manuscript.

I can never properly acknowledge my debt to the western philosophical tradition. I have taken much from Greek science and Greek humanism as well as from Hobbes' conception of man as a member of civil society. As for my debt to contemporary philosophy, I owe most to the pragmatic tradition and especially to Dewey's philosophy when it is read, as it should be, as disclosing intimate interrelations between ideas and institutions. My other debts are not easily specified, but I owe much to my free-thinking students with their not idle protests against authority, ideology, and war.

BERTRAM MORRIS

Boulder, Colorado
June 20, 1968

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Institutions of Intelligence

But so long as power alone is on one side,
and knowledge and understanding alone on the other,
the learned will seldom make great objects their study,
princes will still more rarely do great actions,
and the peoples will continue to be, as they are,
mean, corrupt, and miserable.

JEAN JACQUES ROUSSEAU
Disquisition on the Arts and Sciences

Introduction

Preliminary Definition

Men act, feel, and think, and by doing so they manifest their various human capacities. These capacities, however, may be made known not just by individuals but also by established institutions. The latter necessarily develop regularized forms which, through appropriate means, advance collective ends of social life. We may denote the kinds of institutions that correspond to the capacities for acting, feeling, and thinking as institutions of power, institutions of expression, and institutions of intelligence, respectively.

Just as, psychologically, action, feeling, and thinking are almost certainly never found in complete isolation from one another, so, socially, neither are the institutions such as to manifest one of these human qualities without an admixture of the others. Yet the predominance of one quality over the others is justification enough for naming the institutions as I have above suggested. Thus, government and economics may appro-

priately be regarded as institutions of power; the fine arts as institutions of expression; and science and philosophy as institutions of intelligence. Moreover, each may have supporting institutions, such as courts of law or magazines of the arts and art criticism or, for institutions of intelligence, schools and universities. Even though the supporting institutions invariably employ intellectual analyses, yet by extension they are properly classified with the superordinate institution that they serve. In what follows, however, I shall, of course, concentrate upon institutions of intelligence, but at crucial points I shall want both to indicate ways in which the institutions of other kinds may very well complement one another and to note the desirability of their becoming so interfused as to efface the distinctions I have proposed for analytic purposes.

By institutions of intelligence I denote then such organized forms of intelligence as science and philosophy, as well as those institutions, such as the school or university, that, relying upon the intellect, directly serve to perpetuate them. And for reasons that will become apparent in the course of the discussion, I also denote the practical arts as institutions of intelligence. The intellectual content of the practical arts is certainly implicit, if not explicit, but in an emphatic sense they embody a collective intelligence by virtue of which a society sustains itself. Although they do have a component of power, and usually one of expression too, nevertheless the expertise that at least the primary practical arts demand is dependent on an intimate knowledge of nature, as, for example, in the arts of hunting, fishing, domesticating animals, agriculture, together with the fabrication of all sorts of things. Without intelligence, which includes the ability to make, perfect and employ tools, social life could arise at best in such forms as the animals of the jungle may enjoy, but not in human forms. The tools of social life mark the presence of intelligence at work, and the more

sophisticated the tools, naturally the more sophisticated are the techniques of the arts that employ them.

Science is peculiarly an institution of intelligence because it represents an extension of the knowledge that is contained in the arts, and in turn it allows the arts to become transformed by becoming informed with the new knowledge men gain through the practice of science. In one of its phases, science becomes pure by becoming dissociated from the arts; in another, it becomes effective by being employed for practical ends. In the latter phase, we discern the impact of science on other forms of institutional life; for we see how a people's life becomes drastically changed, involving new means and therefore new ends and therefore new relations among men. Much of my discussion will be an attempt to understand the significance of this change, including the need for educational institutions to keep abreast of change and to help redefine ends appropriate to newly developing knowledge.

As science arises out of the arts and converts them into new forms, so philosophy arises out of science and has as its distinctive task a reconciliation of it with the established beliefs of a culture. Science is liberative; but as with all liberation, it is destructive too. By its dogged insistence upon the development of natural knowledge, science inevitably comes into conflict with settled ways of looking at nature and man and his gods. Through a variety of techniques, philosophy aims to help men reorient themselves to a world torn by conflicting beliefs and attitudes. Plato, St. Thomas, Descartes, Kant, and, more recently, Russell, Whitehead, James, Dewey, Sartre, and Wittgenstein, among others, have attempted just this, however different their methods and insights.

Philosophy, then, is not just an escape from the world or a purely formal exercise of the mind. Rather, it is an escape so that one can return to the world of actions and things and see

them ordered in a new way, more in keeping with what one may know and has a right to believe in. So far from being an idle exercise in intellectual prestidigitation, philosophy is a serious business of seeking through the intellect those structures upon which men can rely and can rightly establish new beliefs. The history of Western philosophy is a formidable story of how, in the light of cultural advances, philosophers have set about this endless task of reinterpreting man and his place in the world.

Through their agents, institutions of intelligence thus share in the task of extending and consolidating knowledge, accommodating institutional purposes to changing intellectual horizons, and of warding off its enemies, especially those of vested interests, ignorance, and such irrelevancies and distractions as prevent men from liberating the human spirit and of furthering their common causes. Clearly, the task requires that strategies and tactics be devised for attaining these ends. The strategies need to be decisive and the tactics will necessarily be complex. The strategies constitute the institutional phase; the tactics, the internal complexities that define intelligence in operation.

Intelligence does not require institutions, but sustained intelligence does. Men are surely capable of thinking and inventing by themselves, but not on a large scale. Institutions can support these activities by bringing the accumulated past to bear upon the present, by introducing more varied suggestions than can come from a single person, and by creating a community of interests that necessarily relies upon critical understanding of ideas. Institutions thus can come to have an established purposiveness, a comprehensiveness, and at the same time a coherence that is difficult, if not impossible, for a person by himself to achieve. And even if there are geniuses that excel in a number of qualities, the one they cannot excel in is that of a

firmly established capacity for sustained activity. At least this is the lesson that contemporary man has learned, and it is as true of institutions of intelligence as of other kinds of institutions.

Nevertheless, an institution of intelligence does not prosper without its tacticians, who are thinking individuals. Intelligence feeds on thoughts, even though they always extend beyond the individual. The process of thinking is mediated by inference, and the whole achieves a form in which thoughts are interconnected in a way that produces a satisfactory result. In the play of intelligence, inferences create a system of thoughts, which are related, moreover, to the ends to which they are pertinent. The dramatic successes of intelligence have resulted in finding forms or laws in the changing events of nature or society, such as are expressed in the law of gravity or in the law of diminishing returns. Without such forms man would be at the mercy of experience; with them he is able to master experience and to employ it for his own ends. But to do this effectively, his successes need to be consolidated and functionally perpetuated. When men do this well, they do it in concert, and thus become institutional agents of intelligence. Those institutions of intelligence that best serve man are those in which the agents accommodate themselves to change by sloughing off old, inadequate ways in favor of new, functional ones.

I define now an institution of intelligence as an organized social activity which depends on a series of inferences and which is capable of correction and of perpetuating itself. The distinctive mark of the institution is its dependence upon a kind of knowledge that is subject to correction. Knowledge that is mediated by inference can be corrected in part by being criticized at each step, in much the same way as the mathematician demands to see strict implication in each step in the proof

of a theorem. But in greater part, knowledge (that is, apparent knowledge) is corrected by our seeking evidence to support the truth of our statements about what the world is. For example, by a series of inferences, together with a growing knowledge of the way things behave, we first conclude that adding nitrogenous substances to the soil produces better and more nourishing crops. But then through a complicated process we later discover that nitrogen in the form of nitrates becomes nitrites and that we are indirectly poisoning ourselves. Such may be the ironies of which we come to learn.

The complexity of the role of knowledge in institutions of intelligence requires that we make a distinction between knowledge for its own sake and knowledge for civic life. Ordinarily the two are intertwined, but for analytic purposes the distinction should be made. Science, we note again, is often said to be pure. Although later on I shall adduce considerations that cast doubt on its purity, for the present we may accept the notion. Science is, of course, pure in the sense that it has its own rigorous techniques and methods, such that, for example, if nitrites are really poisonous to the upper intestines, this is so regardless of a scientist's political ideology or theological belief or philosophical persuasion. Because science is a critical and co-operative enterprise, there is sense in talking about the community of scientists who pursue their objectives, criticize one another, arrive at agreements, and train others to do so. Such a community is surely to be regarded as an institution of intelligence, even the prime institution of intelligence.

There is, however, the wider community to which the practical arts are indispensable. In so-called primitive societies these arts too may be primitive. (It seems, however, that the more we know of such societies the more skilled and informed their arts appear.) The difference between the practical arts in primitive societies and in our complex industrial societies re-

sides in the degree to which sophisticated knowledge enters into and alters the character of these arts. By virtue of this feature many of the distinctive quandaries of our times are created—automated industry, big business, intolerable governments, strife-ridden cities, pollution—the list is endless. Some reasonable utilitarian ends appear to be the only proper measure of the arts if these quandaries are to be understood. The definition of such ends, incorporating as they do institutions of intelligence, is the theme of my discussion. But before pursuing it, I wish to locate some of these quandaries, first, by focusing upon the popular indictment of contemporary society and, secondly, by observing two of the current philosophical modes that bear upon them. Then I wish to reconsider these quandaries from the point of view of institutions of intelligence.

The Popular Indictment

To begin with, there is the popular indictment of modern society, somewhat inchoate, yet somewhat formidable. First, it is a resentment against the bigness of society, and, second, an abhorrence of the confusion of material and spiritual values. Neither of these protests is unfounded. Modern society is big, impersonal, urban, crowded, mechanized, inhuman—in short, it is mass society. It is also one profusely endowed with material goods, often convenient, yet frequently trifling, distractive, and unworthy of human employment. Mass society is a condition of great perplexity, coarse and busy, and rude to individual concern. However much it opens opportunities for a diversity of talents, it nevertheless imposes appalling standardization and monotony upon men's lives. Even though men accept it, they cannot but doubt its acceptability. Mass society surely

does produce its own kind of strains, often intolerable. At times its psychological and social burdens encourage men to seek compensations in sensational or remote ends, disparate from those involvements dictated by social necessities. Compensatory satisfactions are not in themselves objectionable; but they do inhibit more complete and, consequently, more satisfying activities. The popular indictment assumes many forms, sometimes worded as the curse of bigness, sometimes as the lost individual, sometimes as the lonely crowd, and, more currently, as man's alienation. In all these wordings there is a fundamental disjointedness between the individual's hopes and his realizations. And in the modern mode—reflected in literature, the theater, TV, criticisms of urban and domestic relations, and even in politics—there is a prevailing pessimism, spurred on by the facts of social life.

Surely we must admit there is truth in the indictment—even if it is the truth of the affluent society. I am not suggesting that men have not always suffered dilemmas, both on the social and the psychological plane. But I do wish to suggest that the contemporary dilemmas have a singular character, only partly shared with those of the past. I urge, moreover, that unless we appreciate this singularity, we can neither diagnose nor prescribe for the malady of contemporary man. The virtue of the popular indictment lies in its sheer and impressive negativity. It is contained in the immediate and fresh responses of those who are undeniably hurt—their humiliations, their degradations, and their frustrations. The injuries of the common people, being freshly and naïvely encountered, are expressed on the level of common sense and are not projected in Schopenhauerian terms onto the level of metaphysical archetypes. Those most understanding of the immediate quality of human sufferings are the poets or playwrights or novelists or artists, rather than the metaphysicians. Those devoted to the

fine arts, being less given to dogmatics and moralizing than the metaphysicians, are for the most part more competent to give shape to the quarrels men have with their world. The Becketts, the Bellows, the Albees, the Baskins—these articulate the agonies of life in ways that those who suffer them know only as darkly felt, uninstructive emotions. In their articulations we may find not answers but representations of suffering that we ignore at the risk of losing any capacity to cope with the issues of contemporary culture.

Contemporary Philosophical Approaches

Philosophy also comes into play as a sophisticated reflection upon culture—though possibly concerned more with answers than with documented representations of the human predicament. The current philosophical schools are predominantly two: analytic philosophy coming from England and existentialist philosophy coming from the Continent. Beginning in different quarters, speaking different languages, and employing different philosophical techniques, they nevertheless end up with some startling similarities in their final philosophical pronouncements. It is beyond my province to provide details of the origins and developments of these philosophies. I wish, however, to note some dominant features that indicate how members of these schools attempt to cope with the human predicament and how they employ their skills for arriving at their conclusions.*

* For two brief and popular, yet skillfully done, versions of these competing philosophies, I refer the reader to Stanley Cavell, "Existentialism and Analytic Philosophy," *Daedalus*, XCIII, No. 3 (Summer, 1964), 946–75, and George Geiger, "Notes on Philosophy: 1940–65, 1965?" *Antioch Review*, XXV, No. 4 (Winter, 1965–66), 564–75.

Existentialism

Of the two schools, existentialism is closer to the popular idiom. It begins powerfully with Kierkegaard's explosive indictment of European culture and Christians who have forsaken Christianity. Under Sartre, it develops climactically into a humanism that is forced to acknowledge the human predicament as being meaningless, absurd, and nihilistic. The themes are close to human life and the language closer to the vulgar than it is to the traditional philosophical mode of speaking. Kierkegaard consciously disavows the abstractions of philosophy, especially the rationalism of Hegel; and Sartre repeatedly insists that he can better communicate by means of literary and dramatic devices than by means of philosophical conceptualization. Certainly, we must admit that religious language and literary expression enjoy an affective quality that is missing in philosophical analysis.

Besides the linguistic affinity, there is also deeply embedded in these two forms of existentialism a common insight. Both are led to despair, even if for very different reasons: the religious because God is unapproachable and the humanistic because there is no God to approach. The common element, however, lies in a yearning for an inwardness and a rejection of outwardness. (A more profound insight is at times suggested in both versions—namely, that the outward can be accommodated to, and domesticated by, the inward.) There is no doubt, however, that priority belongs to inwardness, without which men concern themselves only with trivia. To understand the details of these themes is to understand existentialism itself. I content myself with merely a few of the most obvious considerations and then only for the purpose of preparing for the conclusions to which existentialists are committed.

Kierkegaard explicitly regards the cultivation of inwardness as the only proper vocation of man. His is a search for, or better, an orientation toward, subjectivity. Man gains nothing by gaining the world—and losing his soul. Throwing all else to the winds, man's awesome search is for subjectivity, and it is a search totally passionate and selfless. "Decision inheres in subjectivity alone, essentially in its passion, and maximally in the personal passion which is infinitely interested in an eternal happiness." * In this search, the scientific mode must be abandoned, whether it pertains to an inquiry into the Scriptures themselves or to the disinterested study of nature. Faith is a demanding mistress, who allows no other love.

The humanistic version may seem poles apart from the religious. And to be sure, in many ways it is. Yet it has its own version of inwardness, which is related to its predecessor. No doubt, the most basic distinction that Sartre insists upon is between things and conscious beings—that which exists "in itself" and that which exists "for itself." The search is for the latter, and an agonizing one it is. Man seeks "good faith," but at every step he falls into "bad faith." Whatever he does, however, he and he alone is responsible; for he *is* freedom. His responsibility is undertaken by his own acts. The act of assertion, which is the expression of his freedom, is a dreadful one, "a pure wrenching away from himself. . . . This implies for consciousness the permanent possibility of effecting a rupture with its own past, of wrenching itself away from its past so as to be able to consider it in the light of a non-being and so as to be able to confer on it the meaning which it *has* in terms of the project of a meaning which it *does not have*." † The chasm

* *Concluding Unscientific Postscript*, trans. David F. Swenson (Princeton: Princeton University Press, 1941), p. 35.

† Jean-Paul Sartre, *Being and Nothingness*, trans. Hazel E. Barnes (New York: Philosophical Library, Inc., 1956), p. 436.

between present and past is the condition of fearful choice—the nausea that is the inescapable condition of man.

The violence of the human estate upon which Sartre insists clearly derives from the rupture of past and present. He will have no continuity between them, and for this reason man is helplessly turned back upon himself, only to find that the task to be undertaken is for a giant, whereas the agent is a pigmy. The result, if not sheer comedy, induces a sense of the absurd, the meaningless, the nihilistic, both for man and for his interpretation of the world. This attitude, however, is not always consistently assumed. Simone de Beauvoir deprecates science in so far as it yields to "the infatuation of the serious" and technics in so far as it "sets up as absolute goals the saving of time and work which it enables us to realize and the comfort and luxury which it enables us to have access to." She adds that "airplanes, machines, the telephone and the radio do not make men happier than those of former times." Significantly, she continues:

> But actually it is not a question of giving men time and happiness, it is not a question of stopping the movement of life: it is a question of fulfilling it. If technics is attempting to make up for this lack, which is at the very heart of existence, it fails radically; but it escapes all criticism if one admits that, through it, existence, far from wishing to repose in the security of being, thrusts itself ahead of itself in order to thrust still farther ahead, that it aims at an indefinite disclosure of being by the transformation of the thing into an instrument and at the opening of ever new possibilities for man.*

* *The Ethics of Ambiguity*, trans. Bernard Frechtman (New York: Philosophical Library, Inc., 1948), pp. 79, 80.

Although we may approve of this notion, it is difficult to see how existentialists can regard it as approvable. As "opening ever new possibilities for man" and as "fulfilling the movement of life," it would seem to be predicated upon the assumption of the continuity of life, rather than upon that of constant "ruptures" and of the need for "a pure wrenching away [of man] from himself." Surely it is the latter assumption that constitutes the fresh challenge of existentialism. By seriously questioning the import of science and technology, existentialists dramatically portray the kind of inwardness that disjoints man from the world, that is, from the in-itself. Thus, being freed from the tyranny of outward circumstance or what they call "sheer facticity," man is guaranteed his freedom. In this sense, humanistic existentialism displays a philosophical similarity to the religious variety. And both kinds converge on a representation of human life as a surd, and consequently as "absurd," whether its dramatic expression is seen in the form of comedy or of tragedy.

Analytic Philosophy

At the outset, no philosophy would seem to be farther removed from existentialism than analytic philosophy—especially if its representative is taken as the early Wittgenstein of the *Tractatus*. The notion that truthful propositions are pictures of the world by virtue of their possessing a logical structure that mirrors the facts of the world—this notion surely lacks anything even faintly dramatic. To construct models of something already known appears to be a most unrewarding undertaking. Yet the enterprise looks quite different when it is understood against the background of the older philosophy—especially German idealism. There are facts in the world to be

known, and they can be stated, if not in the language of the plain man, at least in a logical form which pictures these facts. The world is not all of one piece. There are "atomic facts," and they possess internal properties, whether or not we know how those properties are related to other things beyond that thing to which they belong. Knowledge of objects is thus feasible, and we need not be hoodwinked into a repudiation of the plain facts of the world that are actually knowable. I do not propose to venture into a detailing of the steps by which this philosophy developed. Suffice it to say that it is a sophisticated one, and that its ancestry is to be found in the philosophy of revolt, grandfathered in different ways by G. E. Moore and Bertrand Russell.

Analytic philosophers are generally agreed that we can and do say things that are true of the world, and therefore we need to pay strict attention to the language in which these truths are couched. Linguistic forms are the guides to truth and in them resides our salvation from metaphysical absurdities. Even if we repudiate the "picture theory" of language, we need nevertheless to respect usage if we are not to wander off into senseless oddities. For example, Wittgenstein writes in the *Investigations* about "length" and "determining the length" of something as follows:

> One judges the length of a rod and can look for and find some method of judging it more exactly or more reliably. So—you say—*what* is judged here is independent of the method of judging it. What length *is* cannot be defined by the method of determining length.—To think like this is to make a mistake. What mistake?—To say "The height of Mont Blanc depends on how one climbs it" would be queer. . . . What "determining the length" means is

> not learned by learning what *length* and *determining* are, but the meaning of the word "length" is learnt among other things, by learning what it is to determine length.*

When we say something is "queer" or "odd," then we have made a "mistake." It becomes clear then that the trouble with philosophy is that it is full of mistakes because it is full of queer or odd sayings—such, we may suppose, as saying that we must know the "essence" of redness before we are entitled to say that "The apple is red" or the "essence" of piety before we can reliably say that "Alcibiades is pious."

To employ language consists then in "playing a game." If only we abide by the rules, ordinarily we can all, interestingly enough, win the game. Whether we are talking about mathematical certainties or intentions to do something or how flowers grow, we can get along perfectly well as long as we do not mix our idioms. Numbers don't grow in the same way flowers do, and intentions don't have the kind of existence as when we say, for example, "There exists an integer between 17 and 19." If, we play the game fairly, we can talk sensibly and can probably be understood. But if we insist upon applying the rules of one game to another, we end up with a mess or metaphysics, or with just plain puzzlement. There are many ways of saying this, such as that of tidying up our language, or of dispelling our intellectual cramps, or of showing the fly the way out of the bottle. At bottom, these expressions all signify that questions are answerable; otherwise they are not questions. ("If a question can be put at all, then it *can* also be answered." —Wittgenstein, *Tractatus*, 6.5.) It turns out then that the

* *Philosophical Investigations*, trans. G. E. M. Anscombe (New York: Macmillan, 1953), p. 225e.

deepest problems are really no problems (Proposition 4.003). The aim is to seek clarity—clarity in thought and clarity in expression. The rest is senselessness, or silence. Philosophy seems to teeter between the two, or to be begrudgingly allowed the role of clarifier of concepts. In any event, it is not a science and its own language is suspect.

There is an important sense, however, in which silence is supreme. Wittgenstein's often quoted last sentence of the *Tractatus* reads, "Whereof one cannot speak, thereof one must be silent." Senseless noises surely do not count as speech; things that can be said clearly are not problematic and count as answers; philosophy comes to have a narrowly circumscribed function, and the more successful it is, the more it vanishes.* Is the end then to be regarded as sheer contemplation of that which neither can nor need be made effable? There are suggestions to this effect. It would be interesting to know whether, if this is the end, its expression turns out to be "thick" or "thin"—thick as in the richness of James Joyce's *Ulysses*, or thin as in Samuel Beckett's *End Game*, or even thinner when Beckett dismisses words entirely in his *Act Without Words*.†

There is at least a superficial, if not a fundamental, similarity between analytic and existential philosophy in what can and cannot be meaningfully said. Communication is at the level of mundane, and for the most part unimportant, things. The question is whether communication fails at other levels

* We should, of course be mindful of developments in analytic philosophy that begin to reinstate, even if in a new form, traditional problems of metaphysics, epistemology, and ethics. Cf. Geiger, *loc. cit.*, p. 569 f.

† My young friend Jimmy Milstein has suggested to me that the *ne plus ultra* may be regarded as Beckett's radio plays, which are really "Words without Act." Accordingly, contemporary drama and philosophy may be converging to the same end.

because there is nothing to say or because it can't be said. Absurdity may result in either case, but not the same kind of absurdity. Certainly, nihilism results in both cases, but the one may contain a placidity not shared by the other. Nihilism may be manifested in resignation or it may be manifested in anguish. In either case, man is rendered incapable of coping with the world. The focus on the inwardness of man in both philosophies places the outwardness of things out of focus. By obscuring the connection between inner and outer, both philosophies arrive at conclusions which leave man contemplating himself, depreciating nature, and hindered from engaging in effective action. Accordingly, the alienation of man from nature becomes complete. Science and technology are all right in their place, but of no use to guide man in the solution of issues really important to him.* Does this indictment, along with the popular indictment of modern man, stand? Is it true that modern man can avoid science and technology in the sense that they have nothing to do with the human issues? Have the current philosophies made insoluble problems by insisting on "wrenching man away" from nature or by dissociating his destiny from it? No cavalier answer is appropriate. But to suggest an alternative is certainly appropriate, and I think this may best be done, first, by raising a question as to what "justification" may mean in terms of these questions about issues of life (and death), and second, by developing an alternative in terms of what the arts of man are and how they can be employed to promote his well-being.

* Wittgenstein says, "We feel that even if *all possible* scientific questions be answered, the problems of life have still not been touched at all." And he adds, "The solution of the problem of life is seen in the vanishing of this problem." *Tractatus Logico-Politicus,* trans. C. K. Ogden (London: Kegan Paul, Trench, Trubner & Co., Ltd., 1922), pars. 6.52, 6.521.

Justification

Human life surely would not require justification were it not for the quandaries in which man finds himself. In their absence he would still be living in the Garden, neither attempting nor needing justification for his existence. Living off the fruits of the land, he would not labor or anguish. Under idyllic circumstances, to demand for life a justification would be only an impertinent intrusion. In the classical version, the intrusion that makes justification, an accounting, necessary is the forbidden fruit of which man partakes. Thus, knowledge of good and evil, once awakened, transforms life. Pain, labor, sorrow, self-consciousness—even knowledge itself—can no longer be avoided. Forced to acknowledge the conditions of life, a man can no longer ignore them, nor can he quite content himself without seeking to fit them into some pattern of wisdom.

One of the contemporary modes of expressing the human condition is phrased as "the problems of men." The language may have been overworked in its countless usages—the problem child, the problematic situation, the Polish problem, the problem of race, problems in chess, intelligence as problem-solving, etc. Vague and various as the term is, it nevertheless may not be inept to regard the need for "final" justification as "the problem of problems." In so regarding our topic, we are in a position to suggest an alternative to the prevailing philosophical winds, and consequently to bring out more clearly the direction they are travelling. Accordingly, we can better evaluate contemporary philosophical techniques as well as the kind of results they foretell.

I see four basic attitudes that may be taken toward the problems of men. First, one may evade them; second, one may

solve them; third, one may agonize over them; and fourth, one may convert them. Of these only the second and the fourth seem viable, and for a number of reasons I think the fourth is the more viable.

Evasions

Men perpetually search out ways of evading their problems —mostly because of the unpleasantness or fearfulness of acknowledging them and of coping with them realistically. Since Freud, we can no longer question the prevalence of our wishing to avoid many of the realities of life. The mechanisms by which we do it turn out to be devious, often deeply concealed, even from ourselves. Although evasions are of endless varieties, yet they all contain a wish or impulse that runs contrary to the requirements imposed upon a person who would fairly face his problems.* Evasions always have a psychological dimension, but they have other dimensions as well, social and cultural. Social pressures and restraints are among the powerful forces in hindering one from acting on one's best insights. And culturally speaking, a whole range of superstitions and religious beliefs constitute effective reasons for refusing to follow the dictates of natural knowledge.

Little evasions, like white lies, are necessary if a person is to respect the least rudiments of conforming behavior, as well as to keep trivialities in their place and not to get bogged down in them. Big evasions pertain to gross affairs beyond one's control such as matters of national honor or of cultural insufficiency.

* I am not suggesting that by referring to an underlying wish or impulse I have thereby explained the mechanism. Until an adequate account of the mechanism can be supplied, there is not even the beginning of an explanation of our evasions.

Unable to accept his predicament and incapable of transforming it, a man attempts to wish it out of existence. Yet, evasions even in this area do have the effect of making a man smaller than he need be and of reducing his energies below what they can fruitfully express. For this reason, he cannot afford to ignore the existence of big problems, even if his acknowledgment of them is limited merely to a recognition of their nature. Since big problems are often tragic problems, a person can therefore hope only to gain in respect to them the tragic insight that they provoke. By this insight he avoids self-deception so that if he cannot alter the world to conform to his heart's delight, at least he can alter his heart to acknowledge the sublimity of the tragic vision. Middle-sized evasions such as result in forced role-playing or divided personal allegiances, are probably worst of all, because a man is wracked by them. Not trivial, he cannot set them aside; and not incapable of solution, he cannot take recourse to resigning himself to the contemplation of an alleged tragic wisdom that they might contain. Divided and vacillating, he needs to seek wholeness, yet suffers the torments of a homeless spirit. These evasions take their toll, as any psychiatrist can fully document.

The objections to evasions can be briefly summarized on different levels. On the psychological level, evasions produce sickness—especially in the case of middle-sized ones. A person is out of tune with his world, not just with that of social regulations, but also with that of his own psyche, which makes legitimate demands upon him that he cannot meet. Although social unconformity may be desirable, failure to conform to the demands of one's psyche as part of the real world cannot be desirable, for then one loses touch with the human condition. The result is psychological impotence, which merges with social impotence. Evasions that are distinctively social cater to patterns of custom or to power-structures that have become

antiquated by social factors needing radical changes of policy. Mostly these can be traced back to changes in technology, population, and resources, especially when they are coupled with social injustices. Refusal to acknowledge altered circumstances of life causes serious impairment of society, if not its dissolution. Serious psychological consequences also result, but they are not to be confused with the evasions that pertain primarily to an individual's problems rather than to those of social policy and of social organization.

Solving Problems

At the outset, the second alternative appears to be eminently reasonable: problems are to be faced and solved. A problem that has no solution is unreal; it is no problem at all. In many of its phases, analytic philosophers insist on just this; for along with logical positivists, they are intent upon identifying and dismissing "pseudo-problems." In general, metaphysical questions have no solutions. This fact is often taken to signify that they are not real questions. Instead, they are either "idols of the theater," merely inherited questions from earlier, ill-conceived philosophical systems, or "idols of the market place," linguistic confusions that sound like questions or problems but actually are not. There is only one thing to do about such pseudo-problems: ignore them; for since they have no power of their own, they are not capable of returning to haunt us.*

If "philosophical problems arise when language goes on a holiday," then the holiday being over, the spirit vanishes. The earlier version that language can be used to picture states of

* Of course, the more sophisticated form is to trace them back to their sources, namely, the actual linguistic errors which are responsible for them.

affairs may give way to the notion that its meaning is to be discerned from the use of words. In either case the burden is to make language the bearer of meaning, quite independent of the occasions that give rise to its employment. Possibly, this is as it should be, even though we acknowledge that things—especially tools—have employments somewhat like language. If then we remember that employments are always in context, then we can understand that meanings, too, are always in context—a context, moreover, that always includes the occasion of employment, whether that is for the uttering of a sentence or for using a tool.

We are now on our way to be able to distinguish real from pseudo-problems. Real problems can be dealt with and resolved, without any nonsense. One doesn't talk about using saws for hammers. Similarly, one doesn't have a private language and, for example, use the word *red* where standard usage is *sharp*. This *is* nonsense, a misemployment of words. *Red* does not mean *sharp*, and my fiat does not make it so. If I will conform to usage, I can get along very well in the world; otherwise, I tie myself up and confuse others, to no good purpose. Should we not adopt the same view with respect to the language of philosophy? We have noted Wittgenstein's comment about "the deepest problems" as not really being problems. If only we will relax, we can approach things sensibly and let the fly out of the bottle.

Suppose we do let the fly out, what then? After that, so Wittgenstein tells us, language becomes useless, and we are reduced to silence. The deepest problems have vanished as pseudo-problems; the trivial ones are easily ignored; and the rest are straight-forwardly solved. Life then becomes mysteriously silent—presumably contemplative, possibly devoid of action. The fly, having gone, we are thrown back on our own, neither having nor needing a guide to carry on. There is no guide;

philosophy does not provide it, nor does anything else. The end of life, if this phrase is allowable, is silence. Surely something like this must be allowable, since the cares of life being attended to, and our questions having been answered, there is nothing left but silence.

Agonizing

In contrast to this quiet acceptance of things, the existentialist demands the resolute affirmation of man's being—even if the affirmation may never be consummated. His condition, however, is one that he constantly needs to voice. Finding no grounds for complacency, he cries out his complaints. His cries, moreover, are not the verbiage of lengthy linguistic analysis, but rather emotion-packed expressions, cast in the idiom of literature, or of religious protest, not communicable by the language of analysis. He invents his own vocabulary, which is rhetorical, and above all, a means of catching the human predicament and of retaining it as inescapably human.* So the existentialist turns to non-philosophical media of expression: the short story, the novel, the theater. In these forms he portrays the trivialities, the absurdities, the involutions of life, which have neither issue nor surcease. Contrary to the Stoic admonition, his expressions are not just groaning aloud, but groaning in the center of his being.

From man's predicament there is no escape—no exit. His life is hell on earth, anguishing, and truly inconsequential. Couched in terms of the language of problem-solving, existen-

* In Sartre's *Republic of Silence*, the silence consists not in man's being mute, but in his choice not to communicate for fear that an apparent comrade may turn out to be an enemy spy. Distrust intensifies the need to communicate, while making it all the more impossible.

tialist philosophy denies that problems are solvable. It dotes on them or, as we have said, agonizes over them. Not to face problems is to act in bad faith; yet to face them is to involute them, but not to solve them. The fly can never escape from the bottle. When, as in *The Flies,* Sartre attempts to depict freedom, it comes off as a buzzing or a wandering away, but not as authentic fulfilment. Nor can it really come off as excellence, since although he allows for "projects," he does not allow for improvement, because he allows for no genuine connections among projects. Change is thus essentially undirected, and mostly absurd.

In the existentialist's reading of human history, chaos is a permanent state of affairs. To be sure, much of history, especially recent history, lends itself to this interpretation. But whether or not from the reading of history we are entitled to be optimistic, we are surely misreading it if we fail to recognize its cumulative aspect, the carry over from the past to the present, which makes the present different from anything man had to cope with previously. This alternative reading is not suggested by the vacuous wandering off of Orestes and the buzzing of flies—unless perhaps we can symbolically regard the flies as returning agents of pollination that create new opportunities for human fulfilment. Despite the profusion of energy and noise, flies may, in this alternative, be conceived of as agents for creating novelties. Accordingly, the fly does not just escape from the bottle, nor get stuck in the ointment, but rather, besides being annoying, remains to produce changes that permit men to engage in activities of which they would otherwise be incapable. If only "projects" were to be regarded as cumulative, we would then be close to the fourth way of envisioning problems—namely, converting them from one form to another.

Despite the fact that both Wittgenstein and Sartre employ the analogy of the fly, it nevertheless appears forced. A more

useful analogy is that which Francis Bacon employs when he contemplates the conversion of the human estate as the work of the bee in contrast to that of the ant and the spider. Whereas the ant only collects (information), and the spider only spins (theories), the bee collects, ingests, and converts (and thus transforms the human estate from one of ignorance to one of knowledge and power).

The Arts as Agents of Power

The arts of man of two sorts: those that perpetuate and those that liberate. There is of course in addition those that destroy; but unless they are only limited and temporary, they are self-defeating. The arts that perpetuate, such as those connected with the grain mill, the adobe brick, or the cistern, may serve a useful purpose. They can make for an ease and comfort in life in the production of goods that aid men in their tasks and that possess some quality. But they are characteristic of a people with a settled life, and they do not progress much beyond their immediate advantages. The liberative arts, however, convert useful arts into new forms even more useful and at the same time beget other new arts. They radically alter the circumstances of life, and therefore demand constantly new accommodations to the altered conditions. The steam engine may be taken as an example of a liberative art that made profound demands for social change. It challenged the mores of western society, and it created unbelievable strains and tensions requiring that totally new attitudes be assumed and new relations established. In short, the problems to be faced required profound transformations from those of the preindustrial era.

Not only are the liberative arts less directed to a specific set of activities and purposes, they also are reinforced by intellec-

tual activities far more developed than those pertaining to the arts that perpetuate. The new complex which provides this intellectual superiority is, of course, that of science and technology. The prophet of this point of view was Francis Bacon. On the one hand, he proclaimed that knowledge is power and, on the other, that power indefinitely increases when men invent techniques for invention. The advancement of science then consists in the "invention of invention." Hence, Bacon proposed a totally new outlook upon knowledge. Contrary to Aristotle's logic of discourse, he advocated the logic of discovery—a new organon or method which substitutes the language of nature for that of the syllogism. By correctly posing our questions to nature, we force it to divulge its secrets. The experimental method is thus made to take precedence over reliance upon philosophical dogma or upon the legislation of what nature must be by imposing on it our prejudices or by reading into it the alleged demands of reason itself.

However much science has advanced since Bacon's time, he nevertheless discerned significant characteristics of science that are still valid. Aware of the conditions under which science flourishes, his emphases differ, however, from what philosophers of science would today insist upon. He underplayed the role of mathematics, but he did not ignore it. Other matters of emphasis may be suggested—not just posing questions to nature, but rather commanding, and even remaking nature so that it answers our questions. The use of cyclotrons as opposed to swinging pendulums in an arc or rolling balls down an inclined plane indicates something of the magnitude of difference between science before the Industrial Revolution and science today. This is not the place for detailed discussion of the difference, nor for that of the precise nature of science. I will only suggest a simple definition as a point of departure. Then I wish to observe two aspects of science in order to

facilitate a discussion of what the newer arts of man are and of what kind of justification one may seek for their employment in furthering the ends of life.

The Challenge of Science

As for characterizing science, let us simply note that science is an effective way of saying with some generality true things, or near true things, about the world and that it contains a means for correcting errors. Of course science involves conceptual elements, and it involves empirical elements too; and there certainly is a close interplay between them. In his Terry Lectures, Dr. Conant states this with remarkable clarity. He observes, "As a first approximation we may say that science emerges from the other progressive activities of man to the extent that new concepts arise from experiments and observations, and the new concepts in turn lead to further experiments and observations." * This statement suggests not only the need for employing conceptual and empirical techniques in science, but, even more illuminating, the need for realizing a connection between science and life. Dr. Conant thus revivifies the spirit of Baconian inquiry in relating it to and underscoring "the other progressive activities of man." Oriented as science is to the outer world, it nevertheless engages more than the faculties of perception and thought. In addition, it engages the faculties of manipulation and imagination, man's sense of order, form, and balance, and we need also add, a sense of communication from the past to the future through the present. Science is a challenge because it is an opportunity for human fulfilment; and although the scientist cannot himself

* James B. Conant, *On Understanding Science* (New Haven: Yale University Press, 1947), p. 24.

produce a culture, there can be none without him today. He introduces forms of knowledge that excite men's minds, as well as being useful for human ends. Scientists may be dull and are often incapable of keeping up with the challenge of their subject; but science is not dull, for it gives expression to new ideas and it provides immense powers for remoulding nature. It is therefore not inappropriately regarded as a force focal to modern life.

There is little doubt that science is abundantly fertile: it multiplies knowledge, which further multiplies knowledge. The really basic question, however, is whether the fertility of knowledge is also intrinsic to the fertility of social affairs and whether it enhances the quality of a population that can reasonably sustain itself.

The Principle of Fertility

Social life is fertile in that at its best it stimulates the development of more social life—just as conversation at its best stimulates more conversation, and at its worst dies off into monosyllabic mutterings. In its most productive phase, social life is constantly converting human tasks into new forms. It solves old problems, and by the terms of its solutions, it makes new problems. The institutional and mechanical inventions abounding with such problems are endless, but some picked at random are: the factory, the limited liability corporation, the automobile, the airplane, the hydoelectric turbine, intercontinental missiles, detergents, antibiotics, food-processing, etc., together with myriads of concomitants which, while useful, prove also to pose new questions that require new answers. To speak of these as instances of fertility is only to acknowledge

the kind of creativity that characterizes society when it is not stagnant.

The illustrations I have picked are of course peculiar to modern industrial society. This form of society is given to more rapid and constant change than any other. And the reason is not difficult to find: it is a society behind which lies the dominance of science and technology. Science and technology are themselves fertile forces and the better they are, the more they make for even more science and technology. Modern man lives to see the ever-increasing tempo of activity in these provinces. Scientists solve problems only to create new ones. For example, the atomic theory explains many phenomena, but then the scientist turns his imagination to the problem of the forces that make the atom stable, and from that to other recondite problems of the organization of even simpler particles, and on and on to cognate problems.

The same is true of technology. The airplane, for instance, has its own logistics, which implicates a whole institution of aerodynamics, both in its mechanical phases and in its applied phases, both of which in turn involve a host of social issues. Especially in the applied phases, we come keenly to recognize the interplay between science and technology on the one hand, and life on the other. In his perceptive statement about science, Dr. Conant calls attention to both phases. He notes that "new concepts arise from experiments and observations, and the new concepts in turn lead to further experiments and observations" and he also notes that "science emerges from the other progressive activities of man." I would add that the fertility of science bears a real burden in that it not only emerges from other progressive activities but that in turn it also reacts upon other less progressive activities to make them more progressive. The underlying principle of fertility appears to be

a viable alternative by which life itself is justifiable, for as a continuing process, it constitutes an end by which man affirms life, without avoiding it, putting it to an end, or debilitating it.

Affirmation

As we have observed, philosophy today is uneasy about regarding life as an affirmation. The skeptical mode, including the subjective mode, is so thoroughly ingrained in it that philosophers retreat from expressions of forthright affirmation. To be sure, contemporary history is not calculated to support wholehearted optimism. Continued warfare, accompanied by both old and new forms of human degradation, rightly induces caution in our judgments about human life. Surely we must acknowledge doubts and debilities in their places. Yet, a philosophy that erects them into ends of life can only be shortsighted, for it converts obstacles into ends. Thus instead of employing the obstacles as a way of reinterpreting problems to be faced, it makes them into a sufficient end and thus loses track of life as a series of related affirmations. Doubts and debilities thus become overwhelming. Instead of their being regarded as paradoxes to be overcome, they become entrenched as a form of paralysis. At this point, life is not simply not worth having; it is over. Or if it seems to linger on, it does so only as a kind of low-level existence, scarcely asserting, scarcely denying.

It is often said that affirmation entails negation. At least the high tradition in philosophy often has it so: good is a repudiation of bad, true of false and beauty of ugliness. So also is life a repudiation of death. But at this point, care is needed in what we mean by assertions and denials and by life and death. There appears to be a sense in which life and death are complementaries and another sense, especially in the extreme

case, in which they are opposites and irreconcilables. The latter case regards death as an end of life, a stoppage. It may come to those still living as shock, and possibly it is best dealt with by them through ritual, which is a deeply embedded, cultural way of connecting the quick with the dead. About this we need not further speak. A more interesting and pertinent topic is that of regarding life and death as complementaries, possibly better connoted by the terms, living and dying.

Death is one, whereas, dying, like living, is many. In less obscure terms, we may say there are styles of dying, just as there are styles of living. And if so, we may also reasonably say that there are good ways of dying, just as there are good ways of living—and of course in each case bad ones too. Clearly, style is expression, an affirmation which has its own elegance. And the reason dying can have elegance is precisely that it too can be an affirmation—necessarily a rather heroic one and with finality, even as a great symphony may be heroic and have finality. The dying that is least convincing is that which is a repudiation of all that has gone before. It lacks style or grace in that it is a phrenetic denial, no more worthy than the former existence which it disavows; like a new-found toy, it contains temporary fascination, soon to be discarded to the junk heap. Heroics need not be a matter of wrenching oneself away from reality, but can more impressively be a matter of reaffirming in a more final and intense form what one earlier affirmed in a more tentative and piecemeal way, just because style cannot become sure until a person is satisfied he has fully explored the breadth and depth of action suited to his human needs.

It is worth pausing further over the topic of styles of dying in order better to understand styles of living. One style of dying is an intense affirmation in that it is a summation, a mature recapitulation, of life. Rather than welcoming death, it is a way of heeding life and the virtues it holds. In the absence

of these virtues, death is an inexplicable intrusion, an implicit acknowledgment of life as a surd. Humanistically speaking, there is an urgency for affirming death as the culmination of life. Saul Bellow aims at such a notion when he has Herzog in the novel of the same name say, "The real and essential question is one of our employment by other human beings and their employment by us. Without this true employment you never dread death, you cultivate it. And consciousness when it doesn't clearly understand what to live for, what to die for, can only abuse and ridicule itself." In these words, Bellow suggests an impressive ideal of life and death, Hellenic in spirit, yet not unworthy of contemporary consideration.

There is no style in living if it consists either in just solving problems as they arise without any sense of their interconnections or in brooding over problems without any sense of the objective techniques by which they can be resolved and turned into new challenges for men to meet in terms defined by a community of interests. The first lacks a sense of character, a consistency in human life without which man is alienated from himself, and is thus a kind of unreal being. The second lacks any strategy for coherent action; and while thus brooding over authenticity, it divests itself of the means for arriving at solutions both because it is skeptical of the validity of any solutions and because it distrusts common action for attainment of ends that have been predefined as private. Acknowledging the need for a view of life which regards problems as solvable by being convertible and which insists upon recognizing the indispensability of the intensely personal and affirmative aspect of human action, I now take my task to be that of defining the terms in which humane ends can thus profitably be conceived. Accordingly, the elaboration of this task leads me to discuss the problems of men in terms of the arts in which men find their

complex involvements. The rest of this essay will consequently be devoted to the following topics: (1) the arts of civilized man, (2) the institutions of intelligence that arise from these arts and that in turn transform them into more sophisticated forms, and (3) the liberal arts today: a redefinition. This extended discussion I take to be the essence of a justification of human life regarded in the objective phases whereby men cope with their problems, which are constantly being converted into new forms because conditions of life constantly change.

I. The Arts and Civil Life

The Promethean Point of View

From one point of view, the most distinctive aspect of the human community is its reliance upon the practical arts. They constitute a nexus of so many activities, attitudes, and beliefs that they virtually add up to the profile of a people, including many of their sensitivities and their cares as well as that with which they are unconcerned. Such arts even suggest an understanding of a people's religion and of other aspects of their more intimate relations to nature and to other human beings. The carvings, symbols, or decorations associated with a people's tools often reveal their place in a larger scheme of things. But apart from their larger significance in a larger scheme, a people's tools and technologies unmistakably record the goods in a society and possibly even the social connections that need to prevail for their continued employment. By focusing attention upon the practical arts, then, we are in advantageous position

for posing our primary questions about man and his potential on earth.

The myth of Prometheus is useful for suggesting a kind of cosmic ontology of man. It helps to locate him as a being between animals and the gods, and one who partakes of both natures. Prometheus is just such a mediator who, in stealing fire and making a gift of it to man, converts him from a stupid, unintelligent creature into a civilized and responsible being, even though man also may be condemned in his new estate to perpetual agony. The profundity of the theme makes the words of the poet Aeschylus worth repeating at some length.

PROMETHEUS. *Let me rather*
Relate to you the tragedy of man:
How from the silly creature that he was
I made him conscious and intelligent.
I speak the human race not to condemn
But to explain my kindnesses in what I gave to them.

Seeing they did not see, nor hearing grasp
That which they heard. They lived like ghosts in dreams.
In lifelong anarchy and dreariness.

No houses built of brick to catch the sun
Nor carpentry they knew. Like little ants
They lived in holes and sunless cavities.

. . . . . .

And now, my triumph intellectual!
Next I invent the count numerical,
And history's instrument, skill of the bard,
That great compositor the written word.

I was the first to yoke the animals
In service to the strap, and lay on them
Inheritance of man's excessive toil.
Between the shafts I led the obedient horse,
That ornament of luxury and wealth.
The gleaming sail that wafts across the sea
That intrepid mariner was my device.

The inventor I, who many a shape did show
Of science to mankind, now do not know
What science will my own release allow.

. . . . . .

One sentence short proclaims the truth unique:
Prometheus gave, what man received, technique.

. . . . . .

Know that Prometheus speaks, whose gift to man was fire!

WANDERER. *Thou great utility of social man*
His brightest light since history began,
Prometheus, steadfast in your works revealed,
What spells this punishment, these fetters sealed? *

Following the lead of Aeschylus, we may ask the questions, What is civilized man?, Why should he perpetuate himself?, and How can he do it? These questions are all intimately interwoven, but in order to bring clarity to our discussion, we need to treat them separately.

* *The Crucifixion of Intellectual Man*, a translation of Aeschylus' *Prometheus Bound* by Eric A. Havelock (Boston: Beacon Press, 1950), lines 441–52, 457–71, 505–6, and 612–14. Reprinted with the kind permission of Eric A. Havelock.

Civilized Man

There is a simple answer to the question of the nature of civilized man; and although it has already been given, it is worth repeating before proceeding to unravel some of its complexities. That answer is that civilized man is an artisan. He is a maker, possibly a second maker, who in making things makes himself. I am not suggesting that there is novelty in this answer; nothing so basic is likely to be novel. But I would suggest that the simple truth has been so perverted by a variety of philosophies and dogmas and false attachments that the effort to recover its meaning in pure form and to spell out its ramifications is worth while.

Man is above all an artisan. He makes things, shapes them, alters them, converts them, and employs them in an endless variety of ways. Simple things can be transformed into more complex ones, or can be used in startlingly new ways. Some transformations can be brought about with a minimum skill; others are hard to come by and require considerable training before the appropriate skills can be learned and exercised. Much of the history of technology is a matter of improving upon old tools in order either to realize old ends more easily or to do new things that could not formerly have been done with the implements at hand. The more dramatic inventions are those which create radically new opportunities, which in turn revolutionize society. Iron, gunpowder, the steam engine are obvious examples of revolutionary innovations. Either by a few radical innovations or by the accumulation of many lesser ones a society may become so transformed as to display in its history a new epoch, defined by new techniques, new sets of values, and new institutions that consolidate the changes thus brought about.

Utilities

The first and obvious effect of man the artisan is that he brings about new utilities which serve him directly as a consumer or indirectly as the maker of things for the perpetuation of his society. The latter often hold more importance than the former. One picture of primitive society is that of staunch individuals who provide for their own consumption rather than for that of the tribe. In the case of the Eskimo this may be so, but, as the anthropologists have clearly shown, it is by no means universally the case. Certain kinds of enterprises lend themselves to individualized efforts; others do not. In any event, once the factory system is developed and corporate enterprise superimposed upon it, the model of Eskimo society is about as helpful for understanding industrial society as the fishing spear is helpful for understanding the punch press. But the point I wish to emphasize here is that regardless of economic or social patterns, utilities constitute activities which are the impetus of a society and without which there would be, not stagnation, but no society at all. This is not to suggest that in all societies utilities must be similar; they may or they may not be. There are biological needs that are universal, but the ways in which they may be served are legion. Although man must eat and drink and procreate and rest, the ways in which he does them and the means he employs for satisfying them are so diverse as to beggar description.

Utilities are constituted by the technologies man employs for providing the necessities, comforts, and elegances of life. Whatever are destructive of the goods of life may reasonably be regarded as disutilities. The extreme cases are easiest to recognize. Provisions for creature needs are unquestionably utilities. Food and drink, shelter and the cure of disease—such

goods are most certainly to be regarded as prima facie utilities. And the absences or contraries of them surely are prima facie instances of disutilities: noxious poisons, polluted water, lack of protection from the elements, contaminations, epidemics, and the like. Moreover, since men are social animals, they must have means for getting on with their fellow tribesmen, if not with their extra-tribal neighbors. Men's business and discourse with one another do of course complicate the idea of what is a utility and what is not. Business and discourse are clearly capable of promoting the ends of life. Even more, they are often taken to be ends themselves, and especially the second, rightly so. Life without discourse is not for men—those animals who desperately need to communicate with and understand one another—both for the sake of understanding and for its results. Yet, ironically, the methods employed for carrying on social life—customs and ideas and ideologies—often contravene the primary utilities. At least in extreme cases, such contravention is understandable inasmuch as order, socially defined, may come into conflict with the order of nature, that is, with the primary utilities, without which life cannot be sustained. Thus, warfare, economic suicide, religious dogma, together with endless forms of factionalism, can rent a society to its utter destruction. For such reasons, we should take care to define utilities in terms of both the practical arts and civil life. The practical arts are indispensable in that they advance the life of a people by providing necessary goods and services. Civil life too is indispensable in that it defines social ends and regulates the practical arts in accordance with those ends. Together, they enrich and sustain life as authentic utilities, caring not just for creature requirements but only as they operate within a community of interests.

A utility cannot correctly be defined as that which satisfies an individual's desires or as that which is in accord with the

customs of a society. Desires and customs require validation, and primarily they are validated by serving the purpose of continuing and enriching life. The virtue of a utility resides in men's marriage with realities. In Whitehead's words, they make the present more "insistent," and they do so by "zestfully" relating the urgencies of life to their intimate involvements. By becoming a utility, a desire forfeits its autonomy; it engages the senses in order to prevent its vacuous dissipation and the imagination in order to contain its motion within the banks of relevancy. Or, considered on the plane of custom, a utility achieves its contained movement in the technological instrumentalities of action and its immediate elegance in their design. On the one hand, there are required railroads, trucks, planes, factories, schools, courts, parliaments, etc., and on the other, such structural designs as please the senses and symbolize the function. Aside from contemporary, sustained planning, validation appears to have been mostly sporadic and stimulated by the appearance of manifest disutilities. When a person or a people can no longer ignore dangers and crises that confront them, they begin to take seriously the task of validation. Under relaxed conditions of life and when threats and crises are less imminent, utilities are more easily ignored and leisure and innocent pleasures can more easily be made to fill the gaps. We may regard these fillers as non-utilities.

Collectively, if not individually, men need to maintain some balance between their utilities and their non-utilities. Clearly, a people cannot indefinitely consume or waste or destroy goods without exhausting themselves. Should they persist in the attempt, the processes of nature will determine their fate. When the reckoning does not entail such a fateful end, it signifies that men have already directed their energies to at least minimal utilitarian ways. Utility can of course become so highly minimal in outlook as to deny to persons satisfactions

both revelatory of themselves and consistent with their deeper vocations.

This narrow conception of utility suggests the desirability of entertaining one less restricted. A broader conception is involved in suggesting that non-utilities may be converted into utilities. This conversion may take the form of relating as complements their leisure activities and their other activities. When this relation obtains, the fine arts become amalgamated with the practical arts, and utility and beauty are seen to be integral to each other. Utilities become suspect when creature comforts and work and business clash with psychic fulfilments, enjoyable leisure, and exciting intellectual achievement. When nature co-operated with him, primitive man may have succeeded better in enjoying a kind of wholeness of life than has his modern counterpart. However life may have been for modern man's forbearers, the crying need today may be stated as that of satisfactorily relating the practical arts within the framework of civil society. A society fails which cannot adjust its arts to the requirements of civil life.

Security

The existence of civil utilities in a society ensures at least a minimum of security. In order to practice his trade, a man must have a base of operations which makes his practice possible. In a sense, this is a tautology: no continued practice without a continued practice. But in another sense, the base of operations is broader in extent than that of plying a trade. Naturally, man must be sustained if he is to ply his trade, but a great deal more must be sustained too. The trade must be important and must be sustained, as well as the man, and both of them in a variety of contexts, domestic as well as in the

larger social scheme of which he is a part. If it loses its function, a trade becomes an anachronism. Since function, moreover, relates to activities beyond itself, a trade acquires its importance in the society of which it is a part—even as the dignity of man acquires its significance in his relations to other men. The security that institutionalized utilities make possible is provided by the total base of operations which respects the artisan and which acknowledges the worth of both the creator and the creation.

Security is an indispensable aspect of the utilities of a society; indeed, they go hand in hand. But security needs to be properly understood. It pertains to the expectations of leading a civilized life. Thomas Hobbes perceived this clearly when he insisted that the end of social life is "peace and security." In this, he clearly meant two things: first, men must be secure in their persons, and secondly they must have assurance and support that they can carry on the peaceful arts, such as agriculture, navigation, building, trade, and also letters and the fine arts. Hobbes rejected the snobbish view of an elite society. He was, after Bacon, first to see that power and knowledge and the peaceful arts need to be part of one process. There were limitations in the seventeenth century to the extent to which the peaceful arts could be safeguarded in a society hedged by militant neighbors, and Hobbes accommodated his ideas to these unfortunate realities. At least he made portentious proposals for ending civil warfare, especially that based upon religious divisions.

In the broad sense, then, security needs to be read as the conditions which maintain productive enterprise. These conditions vary with the kind of enterprise of which a people are capable. In the early modern world it was very largely the market society that provided such conditions, a market society in which both the practical and the theoretical arts could be

pursued. But the conditions of productivity are complex and differ from epoch to epoch, as well as from people to people. Security then may be read as furthering production and preventing stagnation, but only as it applies collectively to the arts of man, and not to a separate art as such. We don't need wheelrights any more, and in fact there is no art that is not easily antiquated by technological advancement. The underlying principle seems to be that the antiquation of one art follows only upon the invention of new arts.

Freedom

Man the maker creates utilities and at the same time establishes a degree of security which makes the continued operation of utilities possible; but also he makes life freer in that he increases his range of options for new modes of conduct. In general, there exists a relation between the promoting of utilities and increased freedom: the more utilities, the more freedom one may enjoy. And also the reverse, the more a man suffers from other than self-enforced privation, the more he suffers, not just from lack of material goods, but also from lack of psychic fulfilment too. Without being unmindful of the fact that life can be surfeited by material goods and cluttered by useless employments, we can in general rely upon the principle that the arts are constituted as utilities and that hindrances to them are disutilities. By their utilities, men are freer to choose and to satisfy psychic needs, because they enjoy a range of alternatives which allows them greater opportunities for creating harmonies between themselves and their world. This is not to derogate the attainments of men in primitive societies. Apparently, their harmonies were often profound, and their art often of great stature. The Altamira Cave paintings, for exam-

ple, show unquestionable talent and superb sensitivities, but it should be remarked that their paintings of bison, for example, were not an escape from their world of practical pursuits, but rather an adulation of them. Yet however significant and enviable their successes, there is no doubt that there must have been also much frustration and degradation not recorded in their art. Except for its aesthetic attainments, which possessed an unsurpassable relevance and absoluteness, primitive society could not enjoy anything like the range of expressions possible in modern society. Although many of the options in modern society get lost by default or in some other ways, the problems of modern man in regard to freedom are as different from those of primitive man as industrial society is from primitive societies.

A range of options can of course be confusing, but it also opens new opportunities for venturesomeness. Assuming that freedom gains in importance to the extent that there are options for satisfying the psyche, we may suggest that they can do so only as they pertain to utilities rather than to disutilities. Unless freedom is founded upon a base important to human life, it dies in the agonies of a self from which there is no exit. Men may fail in pursuing options—they usually do, for we recognize that failure is a fact of life too. But freedom can be only farcical if there is no satisfactory range of choices, and it is absolute absurdity to say that a person is free if through ignorance he fails to choose because of utter confusion, or because the alternatives are hopeless, disastrous, or degrading. Choice is no more a matter of inner than it is of outer. In truth a man cannot even live, let alone be free, if he has no inner resources; but it is equally true that he can neither live nor be free without outer resources. Freedom is so very complex because it involves both inner and outer resources, together with a delicate relation between them. The theory I would advocate

is that, except when it is self-defeating, freedom resides in the continuing processes by which inner and outer resources are moulded into a harmony, and that a society in which these processes are aided and approved, is a society of achievement—satisfactory as well as satisfying—and may be called a "free society."

A range of choices makes man freer by giving him an opportunity to identify himself with the concrete means by which he can express himself. No wonder, as John Locke advocated, property and freedom go hand in hand. In Locke's time there was no better way of freeing the serf from bondage and of giving him assurance of his dignity in a society in which by his work he could extend his person and also have rights that would be respected by others. That Locke could have been so carried away as to regard a person's life and liberty as property rights is the conversion of a truth understandable when we recognize the identity he assumed to hold between a man and his works. Freedom may have been overnarrowly conceived; but under the conditions, the definition could not but clarify a phase of life which related freedom to men's makings and doings. We may conclude that, despite Locke's vagaries on the subject, freedom is best expressed through the workings of a commonwealth. From such a source, we can more adequately understand the character of both civil life and civil rights. Locke overworked the interrelation of freedom and property, not as a practical device for freeing men from a worn-out form of society, but as a matter of theoretical concern.

Freedom is a universal in life, but only in the context of civil society. The simple fact is that by itself freedom is appalling. Plato made this abundantly clear; it has been echoed by contract theories of the state, and recently it has been given frightening expression in Golding's novel *Lord of the Flies*. Security is the other face of freedom, but the practical

issues are often confused. Security can, of course, destroy freedom. In this event, what underlies security is probably a form of paternalism or authoritarianism or the sheer desperation that causes men to sell their birthright. But there is another security, which aids men in their ventures; it equips them to have a reasonable chance for success in their undertakings, rather than dooming their chances to failure.

The real challenge is to combine freedom and security such that a person may choose and act, not just blindly, but with some sense of his having been somewhere and his carrying forward to somewhere. In his leap into the future, then, he may fall back, but only to the ground where he may nurse his wounds in anticipation of other leaps. Some would have us believe that the leap is into the abyss. If so, it can be only an abysmal affair. Then freedom may be regarded only with dread. The opposite freedom is to be sought in *con*duct in which leading from is also a leading *with*. The advancement of the arts is of this sort. It signifies that the old arts are given up only for the new—not for the sake of merely giving up. But the new is built on the old, and the old provides the foothold for the advancement. Without this grounding, there is no leverage, and freedom becomes sheer conceit. Except for his stubborn denials, man best exercises his freedom in his creative acts—in short, in making and doing of things useful, especially when they are done with excellence. Freedom to refuse is not to be belittled, but a full measure of freedom is found in the positive accomplishments by which men achieve apt relations with the world and their fellow beings.

Because he needs to establish security as well as to take advantage of freedom, man the maker finds himself in a network of social affairs. His manifest well-being therefore is not evident in the production of things apart from the social life in which they operate. For this reason, hedonic values pale in

relation to the commodious life, which, with all its perquisites, transforms production into expressions of civil society. In a later chapter, I shall show how the practical arts require the liberal arts as complements if the former are to achieve the kind of realization which can pass for civil life. Without such complements, the arts degrade men to the point where they are blind to the rich potential of human existence. Nevertheless, since moral values pertain to the establishment of right relations among men, there is a level at which we can profitably concern ourselves with certain social matters that are indispensable for establishing moral values. I wish to pursue these considerations, first, by further clarifying some aspects of utilities and, second, by analyzing what is required for the justification of utilities in a society of men.

Utilities Further Considered

To clarify further how utilities can serve their purposes in civil life, I propose to note some distinctions between goods and services, to observe the penumbra between utilities and disutilities, and then to add some remarks upon ritual as it affects utilities.

Primary and Secondary Utilities

In the modern scene, social services not only promote utilities but also partake of their qualities. That this is a fact is scarcely open to doubt, but that there is a precise line between goods and services is highly questionable. Although we may wish to say that goods are more tangible than services, this is not always the case. For example, is electric power to be

regarded as a good or a service or both? There is no doubt that it is a utility. But the question may be raised whether the servicing required for a utility is also a utility. I think it is helpful so to conceive it, but it also may be helpful to distinguish, as far as possible, goods and services as a distinction between primary and secondary utilities. Although they are usually intermingled, the one may be said to refer essentially to the productive or industrial processes, the other to the services required in order to realize the consumptive purposes for which commodities are intended. This distinction is especially relevant to our complex, industrial society. More and more, we have witnessed a shift both in the number of men employed and in the importance of the functions they perform in completing the industrial process by providing correlative services. A simple barter system requires a minimum of service. Under such a system, a single person can be entrepreneur, manager, producer, distributer, and consumer. Today, not only is each of these functions highly specialized, but also the need for performing *public* services in contrast to private ones is likely to be paramount. If, for example, we regard the production of automobiles as private, we do not so regard the planning, construction, and maintenance of highways, or the regulation of traffic, or the law-enforcement system that pertains to the use of highways. Since the automobile is an institution that affects so many public interests, it belongs only in part to the private realm. Many of the services pertaining to it are clearly public. The automobile suggests the extent to which the services required in industrial society fall within a social matrix.

The shift from production to services in the United States is now estimated to be about one-fourth of the total employment. The kinds of servicing vary greatly, as may be noted by observing the works of those who distribute, maintain, and repair machines, as well as by those who gather information,

advertise, propagandize, educate, carry on research and development, sell, trade, and possibly even swindle people. The line between what is legitimate and illegitimate is often difficult to draw, in spite of the fact that industrial production does increase with the increased proportion of persons who shift to various forms of management, research and development, advertising, sales, etc. Except in extreme instances, classical capitalism evaded the issues of rationalized production and normalized consumption by proposing that they be settled by "the market forces." Since the days of the Great Depression and World War II, however, there has been a growing uneasiness in accepting this solution. Industrial societies can no longer afford the luxury of having certain kinds of decisions made by private bodies. Inevitably, such societies increasingly come to depend upon public authorities. There is a number of reasons why this should be so. Some of the more obvious are: the performing of necessary services which do not fall within the "profit system"; the regulation of business practices that conflict with the general welfare; a care for those interests that are of too much general concern to be left in private hands; and not least, those joint services that depend on the negotiation of working arrangements among private or quasi-private groups in order to provide the continuance or development of such services. A few words about each of these.

Because of the outlays required, coupled with the unlikelihood that they can return a profit, some general services need to be provided by the state. Guarding against floods or epidemics or care for the young and for old people—such instances immediately come to mind. Again, industrial and business practices that wantonly consume natural resources or those that misrepresent commodities or those that are harmful to mind and body are clearly practices that call for government interven-

tion. Other sorts of services belong peculiarly to the province of the state because they touch sensitive parts of a culture, especially in its political and social aspects. The administration of justice, provision for defense and for police protection, insuring proper education, guaranteeing fair treatment of citizens of different races and religions—such services are patently not to be bargained for in the market place. Indeed, they are meant to fix conditions within which the market may flourish; they are not intended to be dictated by it. Finally, I would call attention to the development of a whole new kind of law which, in supplementing traditional law, is especially directed to the continuance and development of services indispensable to our industrial society. The regulation and supervision of transportation, power, trade, labor relations, securities, communications, aeronautics, and such like—these, experience shows, are better handled by authorities who, at their best, can sensitively and imaginatively come to the kinds of incisive but delicate decisions demanded where practices are constantly and swiftly changing and where the public interest cannot afford to be lost sight of even for brief periods of time.

The point crucial to this discussion is that there are activities so affected with the public interest that they cannot be left to chance or whim or to the vagaries of irresponsible decisions. They require accountability, and therefore they require direction from a responsible, public authority. By recognizing this aspect of contemporary social life, we can more clearly detect a general principle which relates government to a solid base of values with which it is inescapably concerned, namely the primary utilities without which a society, let alone a state, cannot continue to exist. Modern government is thus destined to be the protective agency of such utilities. However corrupt it may be, it maintains itself only as it also safeguards the primary

utilities of its subjects. Moreover, because of its indispensable functions, government is constituted as a utility, a *secondary utility*, we may say.

Utilities and Disutilities

For purposes of clarification, I have distinguished between primary and secondary utilities, depending upon whether they pertain mostly to productivity or to services, including the general services of government. There remains to distinguish between authentic and pseudo services, which I now wish to point up briefly. There exists, as I have earlier suggested, a penumbra between utilities and disutilities, and in the deeper shadows we may not be able to say on which side of the line a commodity or activity falls. There are two reasons for this, not entirely separate. First, we may be in ignorance of the answer to a factual question of what the agent intends to do; but secondly, and much more difficult, is a matter of principle as to whether certain kinds of actions are to be regarded as genuinely useful or not.

As for the factual question, there is the extreme case of corrupt acts, which if we knew the intent of the agent and the outcome of a chain of acts, we would be in no doubt about its disutility. Alleged medicines that the agent believes to be harmful and that are harmful could qualify only as disutilities. Others may be merely placebos, which in the consumer's ignorance could have a mildly beneficial effect, but which could have just the opposite effect were he to gain knowledge of their having been misrepresented. Or, only slightly shifting the perspective, we may raise perplexing questions concerning advertising. Legitimate claims for legitimate products would seem to fall into the class of useful service, at least when they are

limited to appropriate media at appropriate times. Their extension beyond these limitations, however, can easily transform them into disutilities, even though the precise line again may not be detected. Other alleged examples of services can readily be thought of which in truth are disservices or would definitely be so regarded if the intended victims were apprised of the relevant facts.*

Some of these apparently factual questions pertaining to utilities and disutilities actually turn in the final analysis upon a matter of principle. Things that are prima facie useful may be so handled as to constitute exploitation of a people. By employing business extravagance, those who stand to gain extend their activities beyond proper bounds. Advertising is a case in point. Advertising that would be legitimate if restricted to appropriate media and appropriate times becomes illegitimate when extended beyond its appropriate restrictions. The underlying evil can clearly be seen in American life: the distraction of men from their proper vocations. To be constantly bombarded with trivia and irrelevancies hinders them from distinguishing between the true and the false and deters them from the ideal of searching for "the whole truth." Pulchrident may actually make the teeth whiter (and incidentally be responsible for a fungus infection), but whiter teeth can be at best an insignificant measure of civil life and at worst a significant detraction from it.

Ritual

In many cases, disutilities can be decided by factual knowledge; in others it is a matter of public policy. The latter is

* E. Jordan has carried out a detailed examination of this theme in his *Business Be Damned* (New York: H. Schuman, 1952).

likely to be especially controversial in that the penumbra that obscures utility and disutility falls between debilitating ritual and fraternal morality. In the light shed upon the extremes, the issues are clear, but in the middle, controversy rages. On the one hand, ritual is objectionable in that it stupifies reason and silences criticism and is thus contrary to the proper purposes of utilities. It is a major source of anti-intellectualism and an obstacle to the development of civil live. On the other hand, it does promote solidarity and a significant sense of the common bonds and communications of people. Yet, in strengthening the internal bonds of a people, it increases enmity and provokes militancy against other peoples. Especially for modern times, the aims of nationalism, legitimate or illegitimate, are aspects of ritualism, and therefore, despite their virtues are suspect.

Again, ritual caters to the emotional life of a people. The nice connections between utility and those aesthetic impulses that liberate practice are conclusive evidence of the power and benevolence of feeling. In such cases, it leads to an extension of civil life and makes it less rigid than it would otherwise be. The celebration of life is authentic ceremony, a rededication to meaning, and not just to empty form. Commitment of this sort is justified by its power to advance human life. Whitehead eloquently defines it as duty and relevance. In *The Aims of Education,* he writes of them as follows:

> Duty arises from our potential control over the course of events. Where attainable knowledge could have changed the issue, ignorance has the guilt of vice. And the foundation of reverence is this perception, that the present holds within itself the complete sum of existence, backwards and forwards, that whole amplitude of time, which is eternity.*

* Alfred North Whitehead, *The Aims of Education* (New York: Mentor Books, 1949), p. 26.

Whatever our skepticism about eternity, we can nevertheless appreciate that aspect of his statement which attributes to knowledge the power of releasing man from the bondage of the emotions. At the same time the statement suggests how the emotions may be transformed by becoming part of the movement of life through the present from the past to the future. When such continuities are affected, the emotions facilitate, instead of impeding, life; and ritual embodied in the celebration of men's vocations achieves a justification by the broadened vision it gains into the meaning of utility. The principle of the movement of life is the most reliable guide we have for distinguishing utility from disutility. It helps to remove the shadow that obscures the distinction between utilities and disutilities.

Why Should Man Perpetuate Himself?

In taking the point of view that man is a tool-using, tool-making animal, we are not to assume that he is an animal limited to this quality. I shall insist later that his utilitarian activities may be liberalized by his capacities to enjoy what he is doing, to think about them and improve them, and to pursue them in a larger world of meaning. Substantive issues, I think, must bear a considerable burden of the justification of civil life. Total justification, it appears, needs to be sought in nothing short of the totality of the arts, including the primary and secondary utilities, together with the liberal arts, which round out life by creating for men a perspective on their place in their world. Total justification is the achievement of a genuine culture, perpetuated in institutions that are suitable to practical needs and luxurious in the liberation of the human spirit. When the practical and the luxurious re-enforce each other, men live in that rare society which is constituted as a genuine

culture. Yet, the means by which such a culture is to be achieved deserve special consideration, for they also constitute one form of an answer to the question of what constitutes justification of civil society. Thus, the answer to our question is complex. It involves both formal and substantival matters. Accordingly, I wish now, first, to sketch briefly an outline of a theory of justification, secondly, to project the idea of a moral community, and thirdly, to insist that justification requires a constant interplay between the moral community and the arts of man.

How Justify the Arts?

To justify is to give acceptable reasons, and in the field of practical philosophy acceptable reasons require their acceptance by like-minded persons. I hasten to add that the expression "like-minded persons," is not in this case a tautology; for it refers simply to persons who have or are capable of having an understanding of the human estate of their own society. Infants are not capable of this understanding, nor are "barbarians"; "selfish persons" are, but not easily, for they need to be unblocked; most people are, but some with greater difficulty than others. To be sure, the social issues of an industrial society are complex. They are not manageable when people are not adequately informed, and therefore they require wide-ranging knowledge. For this reason, the institutions of intelligence occupy a position central to civil life. Among these institutions, the school must bear a heavy burden, for it has as its reasonable end to educate a people for the appreciation, practice, and extension of its arts. Without such education, a people is prepared neither to participate in culture nor to share its rewards nor to develop any sense of the excitement of the human enterprise.

However difficult is the justification of a practice in the concrete, in the abstract it has a simple formula. Justification is giving acceptable reasons. But the test of acceptability is complex enough; for it is a dyadic, even if sometimes a reflexive, relation between justifier and judge. Acceptable reasons require acceptance inasmuch as the test does not quite satisfy if justifier and judge fail to reach agreement. In the event of either agreement or disagreement, however, it is possible that the judge may have been incompetent. Although certain forms of incompetence, such as madness, are sufficient grounds for rejecting a judgment, incompetence that results from bias on the part of the judge is not so easily dismissed. When no one who is substantially affected by a biased action is injured the motivating bias may be regarded as legitimate. Or again, if someone is injured by a biased action when agreement on the desirability of the action prevails, the justification of the action shifts from the bias to the motivating reasons that make it acceptable.

So, although agreement is desirable and important, it is not satisfactorily reached without a basis in sufficient reasons. In this case, the accounting both satisfies the judge and supports the judgment. An accounting is satisfactory, then, when there is informed agreement on the ends to be achieved, common knowledge of how to achieve them, and a concerted willingness to undertake the steps to effect the end. Even so, it is necessary to assume in practice that no negative conditions will intervene sufficient to warrant rejection of the judgment. Practical judgments can be and are made on such a basis, subject always to the hazards of life.

For example, a person makes a proposal to establish a reservoir for domestic water for a community. The bits of evidence for the advantages of such a proposal are amassed. At run-off periods the water is available and collectable. It is relatively pure, or in any event, capable of being purified at

reasonable expense. The location is sufficiently isolated to prevent easy contamination from passers-by, fishermen, small boys, and beer drinkers. No other use for the water seems better, nor is there any closely competing use for it imaginable. There are no important legal obstacles in the way. Under these circumstances and assuming there are no detectable overriding reasons—such as prohibitive costs or the abundance of other existing supplies for the foreseeable future—surely it would be folly not to build it. The reasons for it and the absence of negative reasons against it constitute reasons why it should be done.* Let us further assume that the members of the community, have debated the question and having arrived at unanimous agreement, actually build the dam. Upon completion, let us further assume that an underground source of pollution contaminates the water so that it cannot be made fit for human consumption. Should the reservoir have been constructed? One can, I think, persuasively argue that it should have, and that the miscalculation could not reasonably have been avoided. One might properly argue this way even though the reservoir could not be converted to some other use—say, to that of irrigation water. Men often fail and need to go on from their failures. But some failures are civil ones, and men may take pride in them, whereas they may not take pride in those that arise from stupidity, malevolence, brutality, or egotism. Moreover, the chances are likely that joint activities civilly engaged in can, upon failure, be converted into new forms capable of success. When such successes occur, it scarcely need be added, they represent new directions for society, growing out of preceding failure. I am not suggesting that an optimistic point of

* See Professor A. I. Melden's convincing case for such a theory as this in his presidential address to the American Philosophical Association, "Reasons for Actions and Matters of Fact," *Proceedings and Addresses*, 1962.

view is always warranted, but it often does lead to rich fulfilments.

Implicit in this notion of accountability is that of a society of the most inclusive sort in which everyone is to count. And without meaning to pun, this signifies a concern for everyone, and everyone's being able to count on others, and finally that everyone is able to count the goods available in the sense in which everyone is highly literate (which in this case also means, especially in modern society, to be highly numerate). Justification is inherently a matter of justifier and judge, as well as a reciprocal relation in which judge becomes justifier, and justifier judge. This is because accountability is essentially democratic in a society in which everyone needs not only to live in society but also to be alive to its multitudinous requirements.

The modern world is unusually complex. To cope with it a people must be educated to the arts which are its drive. And education of this sort is possible only as the agencies of information and intelligence are geared to accomplish the task. Only by such a concerted effort are a people capable of being informed and prepared for justifying their commitments. Otherwise, there is no proper accounting for their works, and corruption is almost certain to set in. The simplest way to justify actions and to give an accounting of them is by consciously overcoming obvious corruptions. The corruptions in politics, in business, in labor, in sports, in the fine arts, in the home—in fact, wherever there are obvious ambitions and frustrations—these are, if not easy to overcome, at least easy to detect. But the most insidious corruptions are those which are so thoroughly concealed that even their perpetrators are no longer aware of what they are doing. The truly insidious ones are those which trivialize life, or just detract from it. They are especially destructive because they infect the very institutions

from which correction is to be sought—namely, the institutions of intelligence. Legitimate protest is thus weakened at its vital source, and the logic of accountability is submerged in the depths of irrationality. Such corruption hurts all, but those who suffer most deeply are those who are made most inarticulate and who are consequently least able to give public expression to their grievances. The further analysis of this theme, which leads to a discussion of the roles of the institutions of intelligence in modern society, I shall postpone to the following chapter. At this point, I wish merely to elaborate the principle of accountability and then to examine the institutional requirements necessary for working out this principle.

The foundations of accountability lie in two directions, the utilities of man and the moral community. I trust we have sufficiently dealt for our purposes with the general nature of utilities, at least as pertains to their practical phase. Utilities, according to this view, constitute the indispensable basis for any society. The reasons for this should now be obvious. Upon the assumption that the arts are to be regarded as a necessary foundation of society, I think it is possible to show what the further requirements are for perpetuating and thus making them more completely justifiable. Accountability is the first of these requirements; the second is the idea of a moral community.

The Moral Community

A moral community is that in which there is an appeal to the judgment of the members of a society to decide on matters of concern to its members as members. Implicit in this definition is the notion that morality pertains to the common concerns of a society, even though the limits of society for various

purposes may be legitimately drawn narrowly or broadly, depending upon those touched by the kind of decisions to be made. In any event, I would focus attention upon forms of action to be approved or disapproved in the judgment of those affected by and responsible for the decision. The variety of concerns is not denumerable and the qualifications for judgment cannot be set with any very great precision, partly because the questions are always difficult, and partly because of their novelty. Yet the idea of the moral community can never quite be rejected inasmuch as men can never quite reject the necessity to justify their actions, however Machiavellian they would be.

By insisting that the locus of morality is in men's common concerns, we exclude trivial issues from its sphere, as well as those which are of moment only to or for a single individual. This last consideration does make for perplexity: how does one decide which questions are of common concern? An entirely satisfactory answer may not be possible, but at least a partial one is. Moral issues usually have deep roots in tradition, and tradition by nature is common to a society or a segment of it. This is not to suggest the palpably false notion that moral issues can be decided by the dictates of tradition. It is only to suggest that many moral issues do arise out of the folklore, mostly because of the conflict between it and new requirements of social life. Yet without an understanding of the folklore, one can have only an imperfect understanding of the issues to be resolved. For the most part, folklore contains elements which, in a modified form, a people will reasonably want to retain. But in extreme instances, especially where there are gross injustices, it may have to be rejected.

The correction of gross injustices is an obvious case of what should be of general concern to a people. *Should* is the proper term, for it clearly signifies the existence of a moral issue,

whether or not actual steps are taken to make it a matter of actual concern. We expect issues involving the correction of gross injustices to be cast in the language of morals—especially that of "rights" and "duties." Among these rights are to be found legitimate interests that cannot be advanced because the possessors of the rights have no opportunity to press their claims. Various factors conspire to prevent them from doing so: biological variations, psychological misfortunes, economic discriminations, political disenfranchisement, social ostracism, and others. At such time as neglected rights are brought into the open they become matters for the attention of the moral community (the public?), and for a decision. They may, of course, continue to be neglected, but only at the expense of becoming fodder for violence and revolution.

There are many other kinds of moral concerns which, not trivial, are nevertheless not so dramatic. They may pertain to protection of life and health and general well-being, or to regulating any number of mundane activities, either to promote them or to make adjudications when they come into conflict, or, in some instances, just to prohibit them. These are probably mostly concerned with the organization of the affairs of practical life. Again, there is the important matter of directing the young into useful and satisfying courses of conduct, as well as the matter of caring for the disabled. And in a somewhat different category are the concerns for forming tastes and developing sensitivities in areas that enhance the culture of a people. All of these matters, and many more, I suggest, are concerns in which there is correctly an appeal to the moral community. The authority of such a community is a legitimizing authority for decisions basic to the welfare of a society.

Granting this authority, we still want to know by what reason and right such a community exercises its authority. The

definition I proposed above suggests the ground of the authority of the moral community as being an appeal to the *judgment* of the members of a society. In the absence of the expression of judgment, there is no moral community. Judgment is not a matter of instinct, or of desire, or an expression of self-interest, or a hoodwinking of others in any of its multitudinous forms. It is a matter of being adequately informed about the issues at stake, of having considerable sensitivity concerning the importance of the alternatives, of being able to weigh the alternatives, and of expressing a conclusion as a result of the judging process. Sensitivity, integrity, and knowledge are indispensable to carrying out the demands of the process.

So exacting is the process and so dependent upon aids and checks that it requires for its realization a highly developed community. Moral issues are controversial. And they are volatile issues, because they arise in the heat of controversy and their outcome is expressed in decisive, practical action. Hence, the extraordinary need for taking whatever precautions possible for insuring a satisfactory outcome. The issues, we have insisted, are matters of common concern; they are also matters which need to be decided on the basis of the clearest and fullest communication possible. Restraint may be desirable in the manner in which the issues are debated in order that they do not produce secondary conflagrations which force attention away from the primary issues. But restraint is destructive of proper controversy if it signifies the withholding of any relevant ideas. Essential to the clarification of issues is, of course, the process of debate and of making full use of the media of communication, free of willful distortion. In the modern scene, these demands place extraordinary responsibility on the media of mass communication, and these demands are not met just by keeping the mass media free from governmental in-

terference. No merely negative devices can insure free media, or better, can achieve the end suggested by the famous Hutchens' Commission "a free and responsible press."

There is a question of how the individual can play such an exacting role in the moral community. He is supposed to be bright and sensitive and will-less, a creature who can subordinate his ends to those of the community, or at best participate in them only as one who shares things with others. The question, I believe, is not as difficult to answer as it is usually made out to be. Much of the difficulty resides in assuming premises that make it impossible to be a member of any community, let alone a moral community. The assumption is that man exists as a lone creature motivated by non-rational impulses, the immediate satisfactions of which he seeks. A creature who is just a bundle of desires and aversions is not one to belong to anything other than the captivating influence of his own impulses.

The truth of the matter is that from infancy on, the human being begins by learning simple manipulations, along with other elementary things, and gradually he learns more and more sophisticated arts. Such learning introduces him from the very beginning into the society of learner and teacher, with its infinitely rich processes of give-and-take. The generic process is that of socialization, so admirably described by George Mead. Human beings, we need constantly to remind ourselves, are social animals from the very start, and this process surely provides the basis for understanding the individual as a member of the moral community. We may take our clue to the solution of the problem from that arch-individualist of social philosophers, John Stuart Mill. In coping with this same problem, Mill characterizes the internal sanction of morality as "the conscientious feelings of mankind." This felicitous expression

is of the essence of the justification of the authority of the moral community. It signifies, as we have said and as Mill makes explicit, the appeal to a person of judgment, having an intellect and understanding of and sympathy for the ends of action. He who is capable of learning and who conscientiously (objectively, impartially, intelligently, sympathetically?) judges his fellow men is surely a member in good standing of the moral community. No more can rightly be asked of any person. If one is not initially disqualified by lack of normal, human equipment, then conscientiousness serves as his badge of membership in the community.

The Moral Community as Guide

There does, however, remain a further objection to be considered. If the moral community is an ideal one, can it really serve the practical function of providing guidance for the conduct of life? There is a formal answer to the question, fairly simple and not very satisfactory, and a complex one, which when spelled out should prove to be more helpful.

The formal answer is that the moral community exists as an ideal community in which there is contained, within a kingdom of ends, perfect knowledge from which perfect answers provide the solution of moral issues. The formal answer then proceeds to acknowledge that in practice there can be only an approximation to perfect solutions. The virtue of the answer lies in there being an ideal to which men can appeal, even if it is unattainable. Moreover, by reaching for the ideal beyond their grasp, men do often achieve something better than they otherwise would. On the one hand, this notion may well contain an optimism and vagueness quite insupportable, and

consequently the result may be a compromise worse than the situation to be corrected. Accordingly, from the theoretical point of view, we could not even pretend to know the degree of approximation to the ideal, for by hypothesis we have no inkling as to what it involves. As a faith, the point of view may bring about good results; but as a position to be intelligently adopted, it is vacuous.

Interrelations between the Moral Community and the Arts

The complex answer proposes that morals do exist within the actual community of men and that they are to be sought both within the workings of the arts and in their interplay. The idea of morality has been badly handled by sentimentalists who misquote Kant with approval: men are to be treated as ends in themselves. They are sentimentalists precisely because they ignore the context of human life, and thus any way for treating men at all. The sentimentalists discount, in Dewey's language, the "instrumentalities," in the absence of which they cannot act at all; they just ignore or let live. In their version, Kant's moral law is deprived of power, and therefore of social significance, because they have omitted the qualification which he clearly suffixed: ". . . and not as means *merely*." Men are means: they are workers, fathers, judges, sellers, advisers, consumers, and so on. In every capacity in which they act, they can be corrupt or not, and consequently in every capacity they can act morally or immorally. Those who would separate morals from the productive activities of men and from the requirements of such activities eliminate most of what makes life full and meaningful. By setting morals apart, they actually detract from them.

Liberation Is Social

The theme I wish to pursue is that men's liberation is expressed through things and tools and not apart from them, and that his moral expressions are social involvements which arise out of and refer back to his use of things. The base of all morality is productive activities, and social involvements are inextricably interwoven with them. Morals are traditionally concerned with the right relations among men. The insistence here is that there is no way of telling what these relations should be if there is no knowledge of the productive activities that support them. It is no doubt true that murder, incest, theft, as well as other crimes, are universally condemned in any society. Without wishing to argue the matter or to indulge in hair-splitting, I think nevertheless it is fair to point out that even these cases need to be defined—and are differently defined—in different societies. "Murder," for example is not just killing, but "illegal killing," and so with the other examples. Perhaps it is straining too much to say that in all instances, morals are dependent upon productive activity, but if it should be proved to be generally true, we may better let the case rest on that ground.

To proceed with the theme. Morals are consummated in activities which define right relations among men. Basically, then, the utilities of men underlie morality. The liberalization of these utilities is civil life. We may insist then that morality is the advancement of civil life; immorality its estoppel or reversal. Men are ends, not by being, but by doing and making; for in doing and making, they also make themselves. After all, even the "poet," as the original of the word tells us, is a "maker." Only as making and doing are consummatory are

men constituted as ends. Expressing it in different language, we may say that men are ends in their enjoyments of their activities and their insights into them, including the perception of the manifold relations they involve. Intellect, sensitivity, and imagination are the qualities of human superiority. By these qualities man enhances the arts, which even in their crude forms already place him on a scale above other biological creatures.

Man and Nature

Men are different from things and from other creatures. Surely there is no need to argue this point. Men are also similar to things and other creatures. This point likewise need not be argued. But we do need to be clear upon the continuities and the discontinuities between man and nature; otherwise we misconceive things so badly that we have no satisfactory notion of either man's potentialities or his virtues and vices. The continuities clearly make him part of this world. The major problem of the discontinuities is the extent to which they separate him from the world, and if so, how his transcendent qualities can possibly make sense for a creature who, after all, is earth bound. "Pure thought," "pure morality," "pure art," "pure spirit," and their cognates leave us in a quandary what the vocation of man can be and how he can come to terms with such elegances as the world contains. To clarify this question we need an understanding of the general principles and their application to the timely aspects of society.

Man lives by his arts and by them he is known. The arts are utilitarian, and as such are to be judged by standards of efficiency. It will not do for one to insist that he prefers to chop down trees with thigh bones or to kill his prey with feathers,

however much one is enamored with bones or feathers. Men live in a world of motions and balances, torques and resistances, and unless they can cope with physical things, they can't even maintain themselves. Little wonder is it then that we think of human properties in such terms as forceful, or balance, or steadfastness, or strength, or growth, or fertile, together with a whole host of other qualities borrowed from physical and biological paradigms. Whatever the elegances displayed in the arts—and they are many—they are properties which supervene upon or emerge from the employment of physical things.

Thus man is, paradoxically, bound to the world even as he gains mastery over it. He requires a sense of the things he deals with and handles. His powers are expressible only as there are resistances to them. The world must complement him or he suffocates in his powerlessness. Whatever the world is in itself, to man it exists as a challenge—in the language of Hegel, it exists as alien, and the challenge is progressively to make it germane to his own being. In a major sense, "meaning" is the process by which man transcends natural things by realizing his objectives through them. The arts always involve manipulation, and it is in this activity that man comes to understand the nature of the materials, how they respond to his deftness, and fail to respond to his clumsiness. The principle is elementary, but it is important to restate it because it is too often ignored or denigrated as being unworthy of the high nature of man, whose real destiny, it is said, is to experience tragedy and to engage in heroics. I would remind the reader of our opening remarks in this chapter, where we quoted from Aeschylus how even man's tragic stature arises from the Promethean struggle to deal with the industrial arts.

Let us assume then that men first come to know things by manipulating them, and their manipulations become more deft

as the arts become established in the folkways and technologies of a people. In modern society, knowledge becomes much more complicated, but manipulation is never irrelevant to it. It gets taken up in science and we dub it experimentation. In science the structure of the materials is discovered in much more sophisticated ways, even though the leading ideas may be extremely simple. For example, the structure of the atom comes to be conceived of, not as a hard nugget, but as a great force by which particles are bound together in a very stable system. From then on the examination becomes very complicated, and the tools required to gain knowledge staggeringly complex and expensive.

The Arts as Mediator between Man and Nature

If we stay with the more primitive arts for a moment, we can better observe another aspect of men's connections with nature which is likely to be obscured in modern science. We seem to be on solid ground in insisting that men best come to have knowledge of materials by their arts of manipulating things. No doubt this is so, but also, since the process is two-edged, men also reveal in it a good deal about themselves. There is no art without style, and style is of the essence of the human contribution which transforms physical things into artifacts, neatly and deftly. And in the repetitions that follow, once the arts become engrained in a society, their artifacts become stylized. Navahos make pots in one way; Pueblos in a different way. Both know their materials, but again in a somewhat different way because their styles are different. Still more interesting is the way within a tribe that styles differ. Margarita will develop a style different from her mother-in-law, Maria.

Both are competent, and to the expert eye each is identifiable by unmistakable marks.

In one sense, style is always unique, but in another it displays degrees of abstraction, and lends itself to generalized treatment. Once an artisan develops a style, he repeats himself, not exactly, but in his idioms. He is still a potter or a weaver or what-not, but there are specific kinds of recurrences which clearly characterize the maker. For certain purposes it is even more significant to recognize the more generalized techniques of throwing pots or weaving blankets than to recognize the particular idiom, since these are forms that carry over from artisan to artisan and that constitute the basis for calling it the art of potting or weaving, etc. In order that the art may continue to be practiced in a society, a new artisan must be trained in the techniques of it before he can become a master artisan with his own idioms. This fact tells us that an art has a structure and that it is an affair of society, not just a lone individual.

The arts are implicitly or explicitly social, and for certain purposes there is an advantage in regarding an art rather than the individual as the unit of society. Individuals give cohesion to social life, not by being aloof, but by doing and making useful things, or by co-operating with others in doing and making things. The needs which are satisfied in society are civil needs, and for this reason man is intrinsically a civil being. He develops style, and although it will be unique, he nevertheless participates in activities that are continuations of a tradition, having cultural roots and having current and functional significance for other members of his society. In developing and perfecting and teaching others his trade, he engages in activities that are at once functional and moral. More than anything else the arts contribute to the establishing of the right

relations among men. Practicality and morality are two aspects of the arts. This is especially the case when in coming into conflict with one another the arts become rationalized to better serve the ends of society.

The Arts and Industrial Society

Turning now to contemporary society, we can observe the same principles at work, even if in a more complicated form. First of all, we discover that the arts have for the most part been transformed by a factory system, involving a whole hierarchy of workers from unskilled to highly skilled to professionals. The utilitarian advantages of this system are obvious in the magnitude of production, in the lessening of the work per unit production, as well as in an increase in the range of things produced. Yet, all of this can be done only at a cost, the chief of which is the psychical loss, which increases geometrically from professional to skilled to unskilled workers. This loss constitutes a disaster in industrial society and produces a host of social problems, especially in relation to those at the bottom of the productive scale.

The cost may be measured in another way, namely, in the decreasing capacity to develop style and elegance as the scale moves down from professional to unskilled worker. Elegance does not vanish from the product, but the professional designer is responsible for what elegance it has, not factory hands or others, except in incidental ways. Beauty is calculated as a value for the consumer and, aside from what joy the designer takes in its production, is no part of the energies of the worker —of "the happy worker" to use what has become a quaint phrase. There is then in most modern production an unfortunate division between utility and beauty, such that men are

forced to seek pleasure as consumers quite apart from their work. The magnitude of this problem we shall treat later as the problem of leisure.

The focal institution clearly responsible for the development of the factory system is machine technology and the science that lies behind it. There are a number of phases that can be distinguished from the time of the Industrial Revolution to the present. These we need not discuss, except to indicate the major shifts created by the increasing role played by theoretical science. The degree of abstract knowledge that underlies modern production is incomparable to that which underlay the beginnings of the factory system, utilizing mostly water and steam as the sources of energy. The advancement of science, together with its applications to industry, has been attended by a startling increase in magnitude and variation of kinds of production, a sharp shift to the importance of skilled and professional workers, and an amazing degree of specialization and co-operation required for the production of the most ordinary commodities.

A major result is that by being transformed by the factory system, the arts involve social interrelations that require both increased specialization of civil life and co-ordinating agencies of a complexity and magnitude that outrun the comprehension of most people. Thus a premium is set upon administrative expertise, not just for the management of corporations but also for coping with the issues between corporations and other bodies within the society in which they operate. Such issues pertain to warfare within and among industries, conflicts between labor and management, as well as their own internecine clashes, costs of living and poverty, displacements of whole populations, regulation of public utilities, together with a host of innumerable other problems.

The result of such warfares, discords, displacements, and

the like shows an increased need for continually harmonizing various aspects of social life. The vigor of the different departments of industrial society is a matter of their pressing their powers to the extreme. Profits, wages, skills, administrative efficiency, and many other activities maintain themselves only by concerted efforts to advance them. The resultant conflicts, however, verge on the point of disaster, with disjointments of society becoming increasingly obvious. If a people are to get along, they need to devise ways for rationalizing their activities. In contemporary civil life, this need can be met only as they increasingly consent to the methods of intelligent planning. Activities which were regarded as utilities turn out to be disutilities, however deeply engrained they are in men's habits and expectations. Civil adjustments become indispensable, following upon criticism and assessment of civil needs. The processes of arriving at decisions, it now becomes plain, are precisely those of moral ideas at work. The moral community is civil society advancing its own interests, nothing more and nothing less. The appeal is to the conscientious feelings of men whose responsibility lies in their capacity to make hard judgments of the needs of society—judgments which provide reasonable ends, which include vigor, but which do not confuse vigor with satisfactory achievement. Ideally, the responsibility is, of course, that of all men.

Conclusion

This conclusion reveals not only why civil life should be perpetuated but also the means for doing so. The satisfactory pursuit of the arts—in contemporary society these are the *industrial arts*, along with their full and liberating involvements —such is the means by which civil life is perpetuated. In

Rousseau's language this is the founding of institutions which alter the very character of men's lives. The tempo of industrial society moves at a pace that makes the processes of founding, altering, and sloughing off institutions an object of constant concern. New opportunities, new institutions, new morals—these are all involved in the process of perpetuating civil life, without which there can be only creature existence, sordid, fetid, and incomplete.

Institutions have some permanence, enough at least to provide leverage for creating new ones before they sink into the swamps of oblivion. This leverage is the hope of civil man; if it fails, modern society fails and so do men, all or most. The hope is grounded on the empirical fact that not all institutions need to be changed at the same velocity. Seizing upon the differential rate of change, men have the opportunity of transforming their dilemmas to new ones and of constantly meeting new challenges instead of working on a treadmill. The principle is then whether there is more truth in the myth of Prometheus or that of Sisyphus. If we look at life from the point of view of death, of sheer contingency and misfortune, of sorrow, and of being caught inextricably in mean predicaments, we shall existentialist-like be attracted to Sisyphus. If, however, we look at it from the point of view of the productive arts, the mood may be one of Promethean cheer rather than of Sisyphean despair. The mood is a function less of our emotional predispositions than it is of the history of the human conquest over the environment and whether we can now cope with our fellow beings as well as we have with nature. The Promethean myth does contain its own brand of suffering; but it is a suffering that pertains to the stretching of the use of intelligence to its utmost, and not one that falters because of dread or because the stoppage of life is death. Intelligence can have its own drive and its own sensitivity, a kind which can make sentiment all

the more vital because it can guide it not just to parlor talk, but to authentic consummations.

There are, of course, sustaining powers in the aesthetic and religious impulses, powers which are more than of negligible strength. Also, there are powers which derive from man's intellectual equipment. The modern world has grown to see these powers expressed in a prodigious way. Modern man has developed the language, the cultural traditions, the instrumentation, and the institutionalization for continuing to make intelligence a powerful, liberating force. He is just beginning to recognize the range of this power as it bears upon every facet of life. "Knowledge production" is gaining and constitutes a significant proportion of our total productive activity. We need to discuss the topic, not just of the production of knowledge but also of its distribution and consumption, in order to observe how the quality of human existence can be enhanced. By discussing these matters under the heading of "institutions of intelligence," I hope to narrow the topic to the more direct issues of knowledge in life, including how science and technology and education and morals come to be interwoven so as to yield a more concrete realization of the prospects the modern world holds for man. Before doing this, however, I wish to state the extent to which I think the argument of this chapter has carried us.

Recapitulation

The burden of the argument has been that the distinguishing characteristic of human life is its reliance upon and involvement in the arts. Man is distinguished by the fact that he can utilize nature through his artifacts and thus paradoxically achieve a kind of independence from nature. He rids himself

of complete and direct reliance upon tooth and claw by employment of instruments and weapons. The refinements of his artifacts are, taken with his leisure and family pursuits, the story of his life. And this life, we have seen, is *civil* life—a life in which things come to have a social definition, are appraised through the processes of criticism, and are allocated by right or by forfeiture. Civil society is advanced by the advancement of the arts, and for the rest, men brood and consume.

Utilities, we found, are productive, not just of things, but also of services, even if the latter do not always serve. "Secondary utilities" we regarded as those, along with "primary utilities," which really do serve. Further analysis of this led to our pointing to government as a distinctive characteristic of societies. Whatever else government does, it has the unique responsibility of protecting the utilities of man, and in contemporary society it has the more active responsibility of actually advancing his utilities, along with whatever liberalization of them is feasible.

Where there is responsibility, there is always the question of justification, of legitimizing actions undertaken or policies enacted. Justification of utilities, that is, of the arts of man, is a social affair. It is a question of appealing to like-minded persons—like-minded because they have common concerns and ways in common of meeting them. The appeal is possible because of, and is grounded in, the objective characteristics of the social world. Hence, we properly call a society a *commonwealth* in that it contains wealth common to a people. They can share in it; they have a stake in its outcome, and they have a common language through which they can communicate and debate their concerns. In the contemporary mode of ethical language, we say that the justification of the conduct of the arts resides in the giving of "good reasons." The assumption is that good reasons are so because they are acceptable. Moreover,

they are entitled to be accepted by those who are in a position to understand the issues at stake, the criticisms of current practices, and the enhancement of life made possible by altering them. When men actively engage in such processes, they serve as moral agents who make their arts accountable. Accordingly, they are agents of "the moral community," which is not an abstraction, but rather "the conscientious feelings of mankind" at work in the criticism and evaluation of the arts. Actions based upon the continuing and conscientious appraisal of the impact of the arts upon the members of a society are of the essence of morality.

Our final suggestion has been that the means by which civil life is perpetuated is the institutionalization of common and acceptable practices. Institutions do have a degree of permanence and can be the bearers of tradition as well as functional units of civil life. We have noted how their pace of change has accelerated in the modern world, and we have traced this acceleration to the employment of institutionalized intelligence. This institutionalization of intelligence appeared on the face of it to be a paradox. The argument was intended to dispel the paradox. Our next task is to support the argument concretely in institutional terms.

II. Science as an Institution of Intelligence

The Paradox

There is a paradox in speaking of "institutions of intelligence." On the one hand, intelligence, which by nature is critical, breaks through institutions in its merciless criticism of anything man does or makes or thinks or feels. On the other, it acquires support in institutions—a base of operations from which it carries out its critical forays. Neither of these aspects of intelligence can be denied without crippling its functions. Were its critical character to be denied, it would lose its distinctive purpose and would give way to sentiment or custom or ritual. But if again there were nothing taken for granted, no ground upon which it could stand, it would be powerless to do its work and would end in a nihilistic skepticism.

Our question is then, Can there exist a balance between the critical, destructive effects of intelligence and an institutional support capable of fostering its growth without causing its own annihilation? In order to answer the question, we need to

clarify the paradox, first, by a sharper understanding of what an institution of intelligence is, and secondly, by an examination of how science, as an institution of intelligence, serves as a focus in the organization of contemporary society.

The Marks of an Institution of Intelligence

As we noted at the outset, an institution of intelligence is an organized social activity which depends on a series of inferences and which is capable of correction and of perpetuating itself. It has consequently an intellectual aspect and a social function. They need not be opposed, but sometimes they are. The genius of a culture consists in making them mutually supporting. Inference, however, is likely to be stubborn and no respecter of social amenities. Yet, if there is no support of each by the other, human life would appear to be so precarious as to be unsustainable.

Inference is the act of drawing a conclusion from a proposition or propositions. Although an inference may, as we have seen, be expressed in action and thus be only implicit, in its pure form it is explicitly expressed in the drawing of a conclusion from one or more propositions. If from one, the inference is immediate; otherwise, it is mediated—as, for example in the syllogism. Formally speaking, an inference may be valid as following from the premises of a syllogism. It need not be a truth about the world of things, as when Lucian says, "Where there are altars, there are gods. There are altars, therefore there are gods." Inferences about supernatural things are surely possible, but they are virtually impossible to support by the testimony of the senses, and therefore are not obviously corrigible. The things of practice that have calculatable and repeatable results are capable of being tested and corrected. We may think

of these characteristics as being peculiar to science. No doubt they are, but they are first found in the arts.

The arts are capable of being learned because there are regularities in nature. A novice can learn, for example, how to drive home nails in order to keep boards in place. He may not know much about hammers or nails or the fibrous structure of wood, but in time he can come to know how to strike nails to effect, avoiding knots, glancing blows, and other factors that defeat his purpose. At first unsure, his motions become increasingly deft, and more complicated manipulations come to be effected with increasing ease. Thus as motions become less random and fortuitous, he anticipates a sequence of events, at first implicitly inferential, later more explicitly so. Eventually, the art of joining and carpentry become a full-fledged practice in which one can be said to have become a master.

The rise of science is marked by a greater and much more explicit insistence upon inference and a decreased, and even tenuous, emphasis upon concrete result. We might say it is more the geometry of an art that interests the scientist and less the product, such as the building of houses or bins or what-not. The structure of science is basically inferential, beginning not with things seen, but rather with relations symbolized, as for example in the law of inertial movement or combinations of atoms to produce molecules. From these various laws or relations, the scientist can deduce consequences, not just in a particular case, but for *any* case of such and such sort. And these consequences may, and often do, prove to be upsetting, if not positively revolutionary. As a critical enterprise, science does have a quasi-autonomy; it possesses a generality not greatly fettered by the practical concerns of the moment; it relies on precision of technique from its own inner demands; and it arrives at conclusions whose rigor has no respect for sentimentality. Science does not advance apart from these distinctive

qualities. In fact, the findings of science gain acceptance largely because of them. Morals, beauty, utilities are never quite irrelevant to the process, but they cannot account for the tough fiber of scientists' methods and procedures, without which there is nothing properly called science.

Yet despite its inner toughness, science cannot get along without social arrangements, which are only partly of its own making. Science comes late in human history and has its roots in other activities which are not altogether alien to it. The most important of these are the arts, which already express intelligence even if less finely honed than when expressed in science. In a less concentrated form, intelligence is at work even in the most primitive arts and even when they are overlaid with superstition and other emotional adhesions. Strategically, these is an advantage in looking to the advancement of the institutions of intelligence as related to the arts. We can better appreciate how intelligence in a variety of manifestations inheres in them, how it promotes new arts, and even how it may become abstracted in a purified form from their concrete embodiments and therefore freed from their previous restrictions. Where intelligence is, the arts cannot be far behind.

Intelligence as Institutionally Embodied

In order to become institutionally embodied, intelligence requires a function. And to be fully operative, a function requires both a motive and satisfactory results. Rousseau provides a provocative starting-point for a discussion of motive when he writes in his *Discourse on the Arts and Sciences* that "Astronomy was born of superstition, eloquence of ambition, hatred, falsehood, and flattery; geometry of avarice; physics of an idle curiosity; and even moral philosophy of human pride. Thus the

arts and sciences owe their birth to our vices; we should be less doubtful of their advantages if they had sprung from our virtues." * There is something highly questionable about Rousseau's moralism. The motives he finds underlying the arts and sciences are a little too weighted in order to suit his theme song; and as a matter of fact, he even contradicts himself as he gets on in his *Discourse*. Leaving aside his particular brand of moralism, however, his psychological insight is engaging. The arts are likely to continue to be practiced by the sheer momentum of custom. Only when some sensitive soul not inured to them by long practice brings something fresh to them do they yield to new developments, either in the form of the advancement of the arts themselves or in that peculiarly enlightened form of abstraction that is called science.

The arts in an obvious sense are institutionally embodied. They carry on functions more or less indispensable to the well being of a community. They are clearly geared to the production of utilities, or at least what are regarded as utilities: food, shelter, tools, things of beauty, houses of worship, burial places, etc. Such arts are practiced continuously and passed on from generation to generation. They become, in short, part of the folkways of a society. As such, they are not easily changed. There is a kind of knowledge contained in them, such as has been called "the received wisdom."

The sciences are no less institutions. They have, as we have noted, their motives too. The practice of them also becomes more or less standardized. But they differ from the arts in that they constantly surpass themselves, for their proximate function is the production not of things but of ideas. To a superlative degree science exhibits the principle of fertility in that its

* *The Social Contract and Discourses*, trans. G. D. H. Cole (New York: E. P. Dutton, 1950), pp. 158–59.

form of knowledge constantly produces more of the same form, as well as stimulating the application of knowledge to human use. Its most recent phase, following upon the scientific revolution, has been called "knowledge production." Some of the traditional role of science in society and some characteristics of the scientific revolution are worth commenting on.

Anticipations of the Scientific Revolution

Before the coming of science, men apparently made mostly by chance the dramatic discoveries that are traditionally regarded as milestones of technological advancement. Their discoveries must have been largely fortuitous, even though many of them were made simultaneously or repeatedly. For centuries men choked their horses and were able to get little work from them because no one had the ingenuity to invent the horsecollar. Or they were unable to live in large communities because they had not devised a way of ploughing furrows deeply. Examples of the sort can be multiplied indefinitely. Because of the slow pace and the seemingly chancy way in which inventions were introduced into civil life, intelligence, conceived on the social scale, was ingrained mostly in the arts. Until some catastrophe came upon men, they were apparently able to get along reasonably well with their traditional arts. They could manage by means of them their basic utilities, and they could realize some comforts, possibly even some elegances in life.

With the advancement of science in the Renaissance these activities changed at a faster pace. But there is a real question whether the sciences were responsible for the advancement of the arts or whether they had independent histories, even if they were born of a common spirit. Chemistry was not sufficiently advanced to enable the Renaissance scientist to under-

stand the explosive power of gunpowder, and even Gilbert could explain, only after the fact and very crudely, the working of the compass. Other inventions, such as the printing press, needed no scientific underpinning. No doubt there was a spirit of adventure that led men to want to know more about the world, to investigate, to manipulate, and to gain mastery over things both theoretically and practically. And unquestionably there was interplay between the practical and the theoretical. Even so, the practical problems, say of pumping water out of the mines, did more to promote the science of hydraulics than did hydraulics contribute to practical invention. Phrasing the matter differently, we may say that the Industrial Revolution was sparked more by practical motivations than by the application of theoretical science to practical needs. The employment of steam and machinery in the Revolution was not a consequence of an elaborate theory, even though Boyle's law obviously could be useful in calculations pertaining to steam engines.

Although the impact of theoretical science in the arts continues to gain in magnitude, the real momentum that produced the scientific revolution is essentially a twentieth-century affair. No longer can one doubt the potency of theoretical science to alter the arts of man. A skilled craftsman with good common sense could have worked out the empirical problems of constructing a satisfactory steam engine. Could he likewise have worked out the problems of constructing a hydro-electric turbine? Coming to the next step, we can definitely assert that without a generous knowledge of theoretical physics, such a craftsman certainly could never have had the slightest notion of how to go about building an atomic accelerator. The shift to the importance of theoretical science is so obvious that there is no need to labor the point. The interesting question, however, is whether in this shift, the character of science itself has not

become radically altered. This really does seem to be the case. Accordingly, I wish to point out major consequences of the scientific revolution for twentieth-century civil life. To do this, I would, first, characterize the kind of change science has undergone and, secondly, describe the way in which it has become the primary institution of intelligence.

The Revolution in Modern Science

There is little doubt that prior to the scientific revolution the model of what a science should be was Newton's *Principia.* Kant went so far as to construct an elaborate theory of knowledge which was to prove that Newton was right and that his physics was indissolubly connected with Euclid's conception of space. The world "had" to be three-dimensional in space and one-dimensional in time because the mind could not possibly conceive it as being otherwise. And until the late nineteenth century, scientists, too, generally shared Kant's enthusiasm for the Newtonian view. The principles of the physical world were known through Newton's insights. The law of inertial motion was established once and for all. If a body is set in motion, it continues forever to move that way unless it is acted upon by some other force. For every action there is an equal and opposite reaction. Etc.

The problems that remained were essentially practical problems—those of applying with great precision the laws of physics to the world. The model was capable of being expressed in mathematical terms, and was equally applicable to celestial and terrestrial motions. There were no longer two classes of motions, one for the heavens and another for the earth, nor was there a class of violent motions, contrary to natural ends and natural motions, teleologically approved by nature and by Aristotle.

The paradigm of explanation of physical events was enormously simplified by Newton's law of the parallelogram of forces. Calculating the forces acting on a body two at a time, the scientist need only designate their vectors, complete the parallelogram, draw the diagonal, and behold! The diagonal perfectly represents the resultant force. Since, moreover, any number of forces could be so treated, the addition of vectors could in this way reveal the determinacy of nature, theoretically if not practically.

This simplified version of Newton is comparable to the simplified version of science that was generally held before the scientific revolution. Nature consists of forces geometrically describable and therefore capable of being added. Nature is constituted as a huge mechanical system; it is the only perpetual motion machine, incapable of losing any energy to the outside; because there is no outside. The properties of nature are measurable, and are therefore mathematically comparable. Nature is constituted as a determinate system. Man is an observer of the system, and when properly tutored is capable of describing it in natural terms, adequately and without injecting any spiritual or psychological qualities into a world, which is itself devoid of such qualities. The observer consequently does not distort the world; he describes it in its own terms, or alternately, interprets it in mathematical terms because "nature is written in the characters of mathematics." There is something elegant about this simplified version, and something true —and something false.

The elegance of the system is its self-contained adequacy and simplicity. It includes nothing which is not understandable. A few properties, once carefully defined and capable of physical measurement, the relations that hold among them, clearly expressed in unambiguous formulas, mathematical operations strictly carried out—these constitute the grounds of the

self-containedness of the Newtonian system. And it is simple too. It cuts through the multitudinous qualities of the world and finds simplicity where common-sense experience finds confusion or overwhelming riches. The simplicities are obvious—once a genius of Newton's stature has disclosed them to us. Apples fall and the moon falls too; only in the latter case, the centrifugal force balances the centripetal one, and the moon continues to circle around, while the apple rots on the ground. Balances of forces can apply to nonmoving things too. The push of the book downward equals the push of the desk upward; hence, forces are always at work and can explain quite opposite looking effects such as motion and rest. Causation is consequently greatly simplified over the Aristotelian version, which multiplies them to four or more principles.

This kind of simplicity must contain truth. It is not only guaranteed by mathematics but is also verified by experiment. The mathematical determinacies are obvious enough. The diagonal of a parallelogram is a unique vector determined by the vectors of the sides. Experimental adequacy is effected by approximation to the mathematical ideal. And sure enough, the more precise the experiment, the closer the approximation to the ideal. Consequently by including the degree of probable error, the scientist knows what he is doing and the kind of accuracy he can expect from his experimentation. The constant refinement of his experimental findings reveals the glory and perfection of the workmanship by which nature was created.

Although the Newtonian system worked well, it nevertheless displayed some defects. There is the matter of action at a distance, and the consequent need for taking a harder look at the meaning of gravitation. What about the ether? ether drift? rectilinear motion? speeds approximating the velocity of light? and many other questions. Are Newton's laws really inexorable

laws of nature? Does the theory of experimental error cover up deficiencies in the theory and blunt our sensibilities to the subtleties of nature that only a higher sophistication can disclose? Not only is the system itself oversimplified but also "the simples" in nature are oversimplified. Newtonianism, if not Newton, is much too crude in what it takes ultimates to be. The nugget theory of atoms as having mass, shape, and size will not do. Nor will do the sophistication of electrons, conceived on the pattern of tiny billiard balls, whirling around a nucleus. These models may explain the motions of ordinary missiles, but not electronic or atomic missiles. The radical difference is contained in the bonds which hold the nugget together such that it can no longer be regarded as a simple, homogeneous lump. There is, apparently, a series of radical consequences which make the new physics a study very different from that of classical physics. Robert Oppenheimer summarizes part of the difference as follows:

> We have almost lost the concept of equations of motion, having discovered that the very terms in which they are formulated—position, velocity, acceleration, and force—are not simultaneously applicable and do not, taken together, correspond to things that we know about the electron with enough accuracy to be meaningful for an atomic system. Instead, what we can have is a knowledge of the state, summarizing for us what we have found by observation; and the analogue of the equation of motion must tell us how, in response to forces acting within the system or upon it, this state will change with time. This, it turns out, is just what Schroedinger's equation does. And once again this equation, when applied to the familiar contexts of massive bodies and great distances, where the quantum of action is in fact negligibly small, will describe for us waves so reasonably concentrated in

> space, so little dispersed about their average wave length, that the Newtonian orbit reappears in its unaltered, classical path. . . .*

Nuggets and determinacies give way to states and indeterminacies. Along with this alteration, there comes to be a highly speculative probing of what goes on within the nucleus, including startling evidence for the existence of many new kinds of particles. More and more the notion of probable error becomes suspect. Scientists were beginning to realize that their results were of gross conditions of matter, not simple things as they had earlier been led to believe. Consequently, they have come to elevate statistics and theories of probability to a much more sophisticated level of mathematics and to make of them the only available keys to the interpretation of nature. By this process, nature becomes for them a looser affair than it was when regarded from the point of view of classical physics. Although a certain reconciliation between classical and modern physics is possible, this is because the former approximates the latter under special circumstances. But even if a reconciliation is possible at the theoretical level, science as an institution becomes so transformed as to make of it a radically different enterprise.

The New Institutionalization of Science

There is something comforting, if not cosy, about the old science, which the new science does not share. The old science could be carried on with a few simple instruments: some

* *Science and the Common Understanding* (New York: Simon and Schuster, 1953), p. 62.

string, some weights, balances, pendulums, magnets, batteries, chronometers, tubes, and glass lenses. This is a slight oversimplification. But what is not an oversimplification is that a physicist could get along well in an attic in Old Main with a few books, a laboratory assistant, and a knack for ideas. The institutional character of his work was largely obscured, and science could be regarded as mostly an affair of the unencumbered intellect. The beauty and elegance of the system was the thing, and experimentation was a mechanical aid to the intellect, much as geometrical notations were regarded as an aid to the science of geometry. Science was pure—the perfecting of a system of concepts from which the character of the space-time world could be deduced. Testing was a kind of necessary bothersomeness, and the results were almost certain to turn out as predicted—or if not, there was some "detail" such as the discovery of a new planet which when taken into account would set the calculations right again.

The institutional character of the early science was concentrated in the ivory tower—away from the hurly burly of industrial pursuits and only vaguely related to the utilitarianism that supported it. The university was the principal domicile of science, the institution within which it developed. For the rest, there were a few special institutes where serious work was done and a few academies and journals where the results were reported and discussed. On the practical side, there were those technologists who borrowed these results and applied them to practical affairs. Except in the minds of Thorstein Veblen and the instrumentalists, applied scientists were held in low esteem by the intelligentsia, because they were regarded as utilizing the work of others without contributing to the fund of knowledge. According to this view, pure scientists inhabited the sphere of the intellect, while applied scientists grubbed in Philistine, utilitarian affairs. No doubt there was created some-

thing of a caste system, which worked to the disadvantage of both theoretical and applied science.

Underlying this classical view was the idea of a mechanistic interpretation of nature, which lent itself to a division of the castes. On the one hand, mechanistic science glorified reason as the instrument by which men could comprehend the system of nature; and, on the other, it provided the rudimentary knowledge by which they could produce machines on earth. Although one could see the institutionalization of knowledge on earth in its application to human affairs, especially in regard to industrialism, it was largely obscured in pure science, where the impact was seen to be more on men's minds than on material things. Only after the scientific revolution does the institutionalization of science become abundantly apparent.

The new science was forecast by the inability of classical physics to explain a number of phenomena such as electromagnetism, radioactivity, gravity, and some others. Faraday, Michelson and Morley, Heisenberg, Bohr, not to mention Einstein —these are some of the names to be reckoned with. The early theoretical work of the new science could still be done by loners, or near-loners. But when it comes to a matter of working out the details, testing, and advancing the new science, the picture is almost completely altered. The advancement of the new science requires co-operative feats of engineering in order that it may achieve maturity. This factor signifies a remarkable change from the old caste system to a rapprochement between science and technology that adds to the worth of each. It dignifies technology by requiring of it a sophistication and an ability not just to take over ready-made ideas, but to invent them and manipulate them at a high level. The rapprochement also has the effect of liberalizing science. First of all, science is no longer strait-jacketed by an outmoded passion for mecha-

nistic interpretation. It can therefore devise innumerable models of nature and test them, not just in conjunction with physical phenomena but also others, for example, physiological. Science loses some of its majesty, that is, some of its rigidity. The physicist now becomes biologist or astronomer as well. He can intellectually range over areas of the universe that he was forbidden to explore because of the tight lines of the old science.

The loosening process has clearly been made possible by co-operative work both among scientists themselves and between scientists and technologists, if we insist on retaining the old terminology. More and more, we observe scientists at work in teams, making their own divisions of labor in common pursuits, and by this process adding immeasurably to the fund of knowledge. The growth of knowledge proceeds at an unbelievable rate. This may be illustrated by the Biological Sciences Curriculum Study which spends some eight millions in order to produce a set of relatively up-to-date elementary text books in biology. The authors declare that most biology teachers will have to "go back to school" to prepare themselves for its use, and then they dryly add that in five years the new text will be outdated. No doubt the same can be said for the rate at which knowledge is growing both in the physical and the behavioral sciences. No scientist in any of these fields can be said, as it could have been said in the old science, to have comprehensive knowledge of his field.

The increased tempo of the growth of knowledge can be indirectly observed by the growth of its institutions. This growth can be measured in part by the kinds of laboratories and instruments that scientists use and in part it can be measured by the proliferation and changes in locus of scientific work. On some of these aspects of the institutionalization of

knowledge we have some rather good data, but even where this is lacking, the outlines of the picture are clear.

There exists a gap between the small attic laboratory of the old scientist and the well-outfitted institutes of science today, just as there exists a gap between the few thousand dollars required to equip the one and the hundreds of millions of dollars required to construct and maintain a 200 BEV Proton Accelerator. A vast change occurs, not just in outlay of funds or in co-operation of many highly skilled workers including no doubt many geniuses, but also in the attitude displayed toward nature. As may be observed, in the one case, science is largely a matter of observing nature with a minimum of distortion—seeing things through a glass. But in the new science, radical bombardments, requiring enormously concentrated energies, produce new particles that seldom appear in nature by themselves. The interference by man increases to such a degree that we are entitled to regard the new science as different in kind—even as the Rutherford atom is different in kind from that of Dalton. The instrumentation required to study nature is clearly of a different order from that of the past, and this shift is clearly marked by a kind of sponsorship science now receives.

Whereas in the past science was largely tied in with the university, we find today that the largest share of the production of knowledge, in the broadest sense, is to be found in government and industry. Professor Machlup cites statistics indicating the relative expenditures of government, industry, and universities for research and development (see the table on page 97).*

* Fritz Machlup, *The Production and Distribution of Knowledge in the United States* (Princeton: Princeton University Press, 1962), pp. 152, 157, and 158. I have reproduced Machlup's Tables V-1, V-3 (in part), and V-4 (in part), all of which have been taken from public sources. He notes in regard to Table V-1 (reproduced under the heading "Expenditures for Basic Research, 1953–54 and 1957–58 in

EXPENDITURES FOR BASIC RESEARCH, 1953–54 AND 1957–58 (IN MILLIONS OF DOLLARS) *

Year	Sources of Funds				Uses of Funds				Total
	Federal Government	Industry	University	Other	Federal Government	Industry	University	Other	
Expenditures:									
1953–54	$ 195	$ 147	$ 62	$ 28	$ 47	$ 151	$ 208	$ 26	$ 432
1957–58	423	249	111	52	111	272	392	60	835
Per cent of total:									
1953–54	45	34	14	7	11	35	48	6	100
1957–58	51	30	13	6	13	33	47	7	100

EXPENDITURES FOR RESEARCH AND DEVELOPMENT, 1958 (IN MILLIONS OF DOLLARS) †

Expenditures:									
1958	$4,430	$5,600	$200	$...	$1,380	$ 8,100	$ 750	$...	$10,230
Per cent of total:									
1958	43	55	2	...	14	79	7	...	100

FUNDS FOR RESEARCH AND DEVELOPMENT, 1960–1961 (IN MILLIONS OF DOLLARS) ‡

1960–61	$9,220	$4,490	$210	$120	$2,060	$10,500	$1,200	$280	$14,040

*National Science Foundation.

†Extracted from Department of Defense, Office of the Secretary, *Statistical Abstract of the United States, 1960* (Washington, D.C., 1960), p. 538.

‡Extracted from National Science Foundation (November, 1961, and April, 1962).

Science as the Focal Institution

There is little doubt that science and its technological complement have grown to be the focal institution of contemporary society, however distorted that institution may be. In a variety of forms, knowledge is recognized as indispensable to the aims of any such society that would achieve its ends. And this recognition finds expression in institutional form, even though romantics of various sorts attempt to repudiate it. The growth of knowledge seems irresistible, whatever the motives of the men who contribute to its progress. For some, the motive is a creative urge of the human spirit; for others it is a bid to garner prestige, personal or cliquish or national; for still others it is a way of obtaining power or wealth; or again, it is just an approved way of occupying time. But regardless of the effective personal motive or political ideology of scientists, the advancement and employment of knowledge is a commitment of every industrial society. And we might add that the variations of its advancement and employment are less marked than the similarities, despite iron curtains, chauvinism, religion, or philosophical predispositions. The reason is that the design of gasoline or diesel motors, turbines, atomic piles, and the like, is an engineering feat, regardless of the particular uses or housings of such engines. Design in machine technology is more a matter

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the table on page 97) that "not all the R&D [research and development] expenditures of colleges and universities are for basic research; in 1957, only 51 per cent were." He then adds: "Lest one wonder why even institutions of higher education were doing so much applied research, we should explain that several of them administer large research centers, most of them off campus, under contracts with federal agencies, chiefly the Atomic Energy Commission and the Defense Department, and that about three-fourths of the work in these centers is applied research and development" (p. 152).

of function than of bias, preference, or social custom. How that technology is further employed may be left to whim or business prospects or even to rationalization of consumptive ends. The dynamics of gaining knowledge, especially as we know it in science, are peculiarly appropriate to the conditions of contemporary life. The secret of its dynamics appears to be nothing other than the secret of intelligence in the conduct of life. Moreover, the singular aspect of its modern form appears to reside in the discovery that intelligence can be embodied in institutional form without losing the capacity for its own advancement.

The intelligent conduct of life requires continual reassessment of beliefs and actions in the light of new awarenesses and in the need for achieving new harmonies. It is, we might say, a productive life guided by constantly new sensitivities. Science, too, begins in awarenesses, disjointednesses, and seeks for underlying regularities, such as can be articulated with mathematical precision. But scientists are nevertheless constantly suspicious of these regularities, and need to recognize that mathematical precision is a tool rather than, as the old rationalistic scientists believed, the essence of nature. Mathematical models are numerous, and their inner structures contain necessary connections which aid in marking certain kinds of regularities in nature. Since, however, nature can be subtler than any model, only the sensitivity of the scientist can lead him to disqualify models which have been regarded as satisfactory explanations of how a portion of nature works. Science is productive because it employs tools capable of yielding determinate results, but it gets on beyond this because scientists are sensitive and are capable of rejecting the rigidities of accepted interpretations. This combination of imagination and critical rejection is the essence of their genius.

Although science does have a history, it nevertheless is

radical in the sense that it is investigation that continually outmodes itself. Its challenge is constantly to push forth its frontiers, and its greatest delight and reward goes to those who succeed in breaking through to new land. Scientists are expected to be radical and to probe the ambiguities covered by dark concepts. There is often said to be an irresoluble question here, How can there be a logic of science, when at bottom science depends upon inspiration or creative genius? The question is rightly posed if, as Bacon sometimes suggests, there is assumed to be a logic of induction which when followed always produces results. This assumption is of course nonsensical. Science does not advance if it is limited to known procedures. Because it copes with the unknown, it needs constantly to invent new procedures. One part of Baconian science was to collate instances of the conjunction of events, and then from a careful observation of the events so conjoined to induce middle axioms, that is, scientific laws, which express the form of the conjunction. But another part was to come to the world with fresh sensitivities, borrowed from other aspects of experience, and by the conjunction of this with empirically devised techniques to discern real connections among things. This is what Bacon meant by "experiments of light" as contrasted with the more narrowly conceived "experiments of fruit."

In its creative phase, science does rest upon imaginative insight, and proceeds by asking new questions. Such creativity, however, is not limited to science; it is also in philosophy, in art, in religion, in morality—in short, in any activity where the human spirit is at work. It is, nevertheless, especially evident in science today, no doubt because present society so liberally supports science and encourages scientists. We seek for scientific talent, screen for it, and give it every manner of aid. Little wonder then that the mute Miltons of science have become articulate and that the abundance of talented men who have

been encouraged to doubt extensively and to question intensively produces a constantly increasing body of knowledge incomparable to that of any previous time. I leave the uncovering of the mysteries of creative imagination to those better suited to explain it. But I do insist upon acknowledging the acceleration of scientific discoveries, dramatically punctuated by the incidence of those who are only weeks or days too late in getting their results to the journals for them to be regarded as new discoveries.

This acknowledgment helps to close the gap between the radical and the conservative phases of science. We know how to produce scientists and we do it in institutionalized form. They are spotted early in high school, or before; they are awarded handsome scholarships; they are further trained by the best scientists and their aides; they are provided with modern laboratory facilities; and many of them turn out to be productive scientific geniuses, who in turn continue to assist the training of other scientists. Teams work together; they have access to the use of computers, 200-inch telescopes, synchrotrons, and other instruments necessary to advance knowledge. There is little to block progress and much to encourage it. The ritualistic elements increasingly vanish in the light of constant criticism both in science and in the preparation of future scientists. There are, however, some darkening clouds, namely, those that obscure scientific investigations by the new secrecy. By being withdrawn from the light of public debate, such investigations fail to achieve the kind of full disclosure that is vital to the advancement of science. Before pursuing this topic, however, I would recur once more to the paradox I originally posed.

At this point we have, I think, arrived at a clarification of the paradox of "institutions of intelligence" suggested at the

opening of the chapter. Intelligence breaks through and destroys the rigidities of old beliefs and attitudes, and also the social structures that bolster them. Yet it is clear that institutions are required to sustain intelligence in any but its most rudimentary forms. If we regard the social complex that sustains science as the paradigm of institutions of intelligence—and I think this to be correct—we can better understand the paradox as a function of the history of science. Intelligence or new theories do destroy the old in the sense that they outmode them. Post-Darwinian biology outmodes that of Linnaeus; it does not eliminate classification of species, but it does reject it as an end in itself. Similarly, the periodic table, though retained, appears radically different to the scientist who is concerned with radio-activity, isotopes, and quantum theory than it did to Mendelyeev. Breakthroughs in science require new kinds of experiments, new laboratories, new techniques, and new instrumentations. Relativity theory and the "ether drag" give rise to one set of experiments; quantum theory to another; and both make obsolete old theories, old experiments, and old laboratories. Even though science requires a body of knowledge in order to attain new knowledge, scientists are notorious in their willingness to neglect or forget the history of their arrival at their current concerns.

An even more unique characteristic of the new science is its planning for its own obsolescence. Scientists no longer wait for quandaries to appear; they work on anticipating them in appropriate ways. If universities are not geared to the challenge, new centers or institutes are created, outfitted and manned for the purpose. Thus fresh problems pertaining to atmospheric research or cryogenics, or the creation and study of new particles, or what-not—these are systematically cared for in the institutions of intelligence called science. The facts are that scientific advancement goes along at a great pace, that many of the most

challenging problems are being solved, and that the gap between the potential for knowledge and the actual production of knowledge is decreased, to the advantage of both. However much of a mystery creative genius may be, the conditions for its discovery and employment are coming to be better known.

The virtue of science at its best is that it produces more science. In eighteenth-century language, this is called progress. Focal interests of a society always have a way of advancing, whether they are religious, artistic, scientific, or whatever. Yet the institutions that support such activities are always subject to decay—though possibly less so in regard to science than to other activities, because science by nature is intrinsically progressive. There are some danger-signals, however, in the institutional practice of science, on which comment is now appropriate.

Institutional Obstacles to Science

The practice of science may be stultified by institutional obstacles. As we have suggested above, the chief of these is secrecy, but there are others of some potency. The trouble with secrecy is that science disfavors secret societies. It feeds on knowledge gained by anyone who is willing to learn the language of nature and is capable of extending it beyond what his predecessors could teach. Science is in this sense public and flourishes in processes of criticism, clarification, and repeatable experiments. All of these are best conducted in the open society in which there is maximum play of intelligence. Although the technical procedures of science are furthered by institutions—laboratories, schools, conferences, academies, journals, etc.—it is the sponsorship of these institutions that may be the most telling influence of all. Clearly, sponsorship can be

designed to liberate or to impede the fuller progress of science.

The most critical challenge, then, to the new science comes less from its technical procedures than it does from its institutional restrictions. The fact is that the continued support of science requires enormous outlays of human and material resources, and this fact is a source of both its restrictions and its capacity to progress. Such outlays entail policy decisions of the first magnitude—decisions that cannot but affect the course of scientific investigations. There is no turning back to the old, and there is no turning away from the commitment to the new. The crucial question is not whether but *how* the policy decisions are to be made. Clearly, they are practical decisions and cannot be decided without some risk, calculated or not. The danger is that they will be decided in a narrowly defined political context, realistically designed to protect national interest or sentimentally designed to exploit chauvinistic prestige. Neither is by itself illegitimate, but both are subject to a maximum of arbitrariness because of their limited aims. As Hitlerites ironically discovered, the more national interest is emphasized the more it may actually be defeated, precisely because the full power of the new science becomes restricted by short-run and short-lived objectives. The question is how to get the maximum advantage from a science which requires an ever increasing portion of expenditure in talent and goods. There is an answer to this question, even if only a methodological one.

Very simply, the answer is that the most effective way to minimize arbitrariness of decision is through publicity and debate to the end that the decisions may be made with greater rather than with less knowledge. If a National Space Agency is to employ its powers to the best end of exploiting the science of space, it is not because an inner bureaucracy has agreed upon techniques for attaining the end, but because the best scientific brains inside and outside the Agency have scrutinized the

plans and offered various alternatives, not toward the end of being first, but toward the end of contributing to human knowledge and of resolving the problems of man. Magnificent as the bureaucratic successes may have been, they are not magnificent enough if those capable of understanding the problems are excluded from participating in policy decisions because the necessary information to make significant judgments is withheld from them.

The new science requires free institutions if it is to advance. "Free" does not mean without restrictions. It means freedom of debate and criticism and of arriving at decisions on the basis of the best knowledge attainable, and of being able to review these decisions whenever new knowledge or other changed circumstances intervene. In this sense, freedom is not to be confused with isolated individuals or bureaus, acting arbitrarily. Science is in essence collective and public, and only under extraordinary circumstances can its secrecy be legitimate. And even then the risk is very great—in fact, so great that it dare not be taken except after debate and criticism and publicity. Otherwise intelligence is defeated, and with it, modern man too is defeated.

Concluding Remarks

Science has been here regarded as representing *the* institution of intelligence, not because it is the only such institution, but because it is focal in modern society and therefore colors most of what modern man does. Especially as it develops into the new science, it is the prototype of intelligence at work. Because the new science is advanced in theory and also involves prodigious engineering feats co-ordinated with it, there is increased reason to concentrate upon it as *the* institution of intelligence. This characteristic of the new science is even

reflected in the new terminology which is employed to regroup scientific undertakings. Physics, astronomy, aeronautics and missiles, for example, have come commonly to be regarded as space sciences, just as psychology, the social sciences, and law have come to be regarded as the behavioral sciences. Two observations on this regrouping are relevant: first, the new terminology acknowledges the need for cutting across traditional divisions of the sciences, and second, it more closely relates theoretical and practical concerns without diminishing the importance of theory and without derogating practice to the level of stereotyped specialists.*

There is a question about the point at which "knowledge production" is not really to be regarded as knowledge, but only as the application of specialized skill which is easily outmoded in the new scientific age. Much that goes under the title of "Research and Development" may actually be of this sort. The "R & D" scientists who are limited in training and insights to serve practical ends narrowed to short-lived tasks are in a class with those less skilled technologically unemployed who constitute a serious economic problem, and again an even more serious human problem because of their "trained incapacity." Problems of this sort are such as to call attention to another aspect of our discussion, now over-delayed, that of the dissemination of knowledge and of its relation to the production of further knowledge.

* Earl D. Johnson of the Delta Airlines does seem to challenge this statement when he writes that "Brilliant men who were involved in the [space] program will not have the flexibility and productivity that they had in their twenties or thirties." And of specialists who believe that they can narrowly specialize and later find employment for their skills, he observes, ". . . very few companies in the civilian sector of the economy can use the kind of highly specialized skills that are being developed in the military and space sectors." *Technology and Social Change*, ed. Eli Ginzberg (New York: Columbia University Press, 1964), p. 77.

III. The Functions of Education

Dissemination of Knowledge

Like the production of knowledge, the dissemination of knowledge is highly institutionalized, and rightly so. Moreover, as an institution of intelligence, the dissemination of knowledge likewise raises a nest of questions as to how it can truly be constituted as intelligence and at the same time be forwarded by its primary institution, the school. Intelligence, we have seen, is necessarily radical; the school, it seems inevitable, is conservative. Intelligence feeds on spontaneity and creativity; the school upon orderly lines of progressions. Intelligence works on a cutting edge; the school on rounded experience. The oppositions appear to be sufficiently sharp to cause one to wonder how the school can possibly be the instrumentality of intelligence and provide the background for a person of intelligence to assume a place in a society geared to the new science. Is it possible to reconcile this opposition, or is there perhaps no real opposition? Have we possibly stated one when in fact none such really exists?

Whatever the answers may be, I propose that we approach these questions from the point of view of education as related to the arts broadly considered, and that we then come to terms with the demands on education created by the rise of the new science. This approach has the advantage of placing the issues in the contemporary mode. And I would add that if we ignore this mode, education becomes irrelevant to the things of most concern to the modern condition. To expedite the discussion, I shall divide it into the following topics: first, the primitive arts by which the young person initially comes to cope with his immediate and highly protected environment; secondly, the school as geared to the demands of the arts; and finally, the challenge of the new science to the theory and practice of higher education.

The Arts and the Uninitiated

From an abundance of studies over the years in human and animal life, we learn that intelligence is a trait of all animals and that it begins to show at birth. We may no longer rightly insist that intelligence is first exercised at an "age of discretion"; on the contrary, it appears in the beginnings of life or not at all. The current belief has deep roots both in Darwinian biology and in Freudian psychology. The Darwinian view discourages the notion that intelligence makes its first appearance in man. To be sure, its development through the arts marks decisive steps in the history of institutions. Nevertheless, the fact of intelligence in most, if not all, animal life is established beyond doubt. And if biology establishes some continuity of intelligence in all animal life, Freudian psychology equally establishes the continuity of a conative factor which is perpetually overriding and cancelling the power of

intelligence. Thus we are less inclined today to divide the child from the man or the irrational from the rational. Intelligence makes its way in all stages of life, and in all stages it is generously interlarded with non-adaptive, ill-directed conduct. I am not suggesting that we should confuse intelligence with stupidity or that we cannot be clear on the differences between what constitutes intelligence and what defeats it. Rather, I am suggesting that the standards we employ to distinguish them refer to kinds of actions and not to ages or kinds of people. *Homo sapiens* is also *homo stultus,* and no one can ever quite avoid being both. It is true that men can be aided in being intelligent and that the aids come largely from the arts of doing and making. The display of intelligence consequently has much of its source in social life, for two reasons: first, it provides direction for conduct and secondly it provides techniques for realizing direction. The two are concomitant, not separate.

The psychological problem to be solved is clearly that of explaining how random behavior becomes adaptive and purposive. The solution of this problem is not our task. But it is our task to note the terms without which the psychological proposal fails to accomplish its work. Intelligence is purposive, adaptive, and social. Therefore, the psychological account needs to show how random, unadaptive, a-social movements become converted into intelligent conduct. Otherwise, the psychological account is defective. Sophisticated theories which speak of "sign" and "referent" or even of "stimulus" and "response" are correct in pointing to the gross fact of purposiveness, but they beg the question of intelligence instead of explaining it. This is so because the relation of sign to referent is already selective and purposive. And the same is at least partially true of stimulus and response. At this point, organization has already taken place. Therefore, it does not tell us how

such relations have come to be established. A theory such as that of "synaptic connections" may commend itself as a better attack upon the problem, not in that it is necessarily true but in that, whatever its inadequacy, it nevertheless suggests a mechanism capable of being investigated.*

There are two good reasons, I think, for acknowledging the play of intelligence in infant behavior before we proceed to its institutional phase. First, it helps us to see how intelligent conduct makes an intelligent being capable of even further intelligent conduct. And secondly, it helps us to see the objective and social character of the play of intelligence. Much of the fascination of observing the infant develop resides in the profundity of the change from a being dependent upon others to an independent agent. At first quite incapable of contending with its environment, the infant progressively manages satisfactorily to relate himself to it. Accordingly, the play of intelligence represents a good deal more than mere cerebration. It represents a multitude of adaptations by which the growing individual comes to have new prowesses, new outlooks, and new enthusiasms. With the defeat of intelligence, the processes are reversed.

As the intelligence of the infant is furthered, he becomes accustomed to the ways of others both by responding to them and by making demands upon them. He comes to be a member of a community of interests, however much he requires care in order to continue to create his selfhood. Although the involvement is one devoted very largely to the personal needs of the transforming infant, the patterns of responses that evolve are

* On the level of a philosophical account, which nevertheless fully acknowledges the psychological problem, I commend the reader to Stephen Pepper's admirable analysis of purposive behavior in his *The Sources of Value* (Berkeley and Los Angeles: University of California Press, 1958).

such as to give him standing in the community: the ability to feed himself, look after his personal hygiene, communicate wants and demands, perform some services, become increasingly sensitive to things, gadgets, and other persons, and possibly in rather simple ways to make things of his own contrivance. In other words, the infant is, on his own level, doing the kinds of things that a mature person does. He progresses in his own way as an artisan and a member of society who is capable of developing a variety of talents.

From the very beginning, the infant progressively becomes a member of civil society, and like the more mature members of this society, he is capable of engaging in the progressive contract by constantly coming anew to terms with other members of his society—or we should say, coming to terms and falling out with other members of his society. Although limited, the infant's society continues to expand concomitantly with the arts that are learned. In fact, they are a measure of the advancement of the infant's membership in civil society. As he learns more of the arts, he is more capable of participating in an expanded social context. Such participation signifies both that he is geared to the new requirements of the larger context and that he is better prepared to make demands on that society —namely, the demands necessary for practicing his arts.

The School in Relation to the Arts

The arts of personal involvement, first supported by the family, inevitably expand into the larger society that surrounds it. Thus new demands are made upon the child and new opportunities are open to him. He must cope with others less committed to his own well-being and even with those alien and unfriendly to him. In order to do this successfully the child

needs to advance his civil life beyond the arts guided and protected within family bounds. The process is a part of culture, dependent as it is upon various degrees of knowledge of things and persons and upon skills in achieving satisfactory relationships that bind persons together in a viable society. The development is at once moral and educational, both of which require support from the institutions of intelligence. In contemporary society this development is marked by a shift from family to school, and, as we have throughout insisted, all of this in the context of the pervasive challenge from the new science. Accordingly, I wish to consider, first, the dictates legitimately made upon the school in the light of the commitment of modern society to science and technology, and secondly, the nature of the cultural requirements for meeting the challenge of the new science and technology.

The shift in emphasis from the family to the school is from the arts of personal involvement to those of impersonal knowledge and cultural skills; but, since intelligence is at play in both, the difference is one of emphasis rather than of kind. Whatever else it is, the family is an institution of intelligence, and by the same token the defeat of the family is the defeat of intelligence, especially for the child. It surely learns its elementary skills under the care required to nurture them, including the approval and disapproval necessary to establish and re-enforce them. Moreover, the spontaneities displayed in the learning process involve child, parents, siblings, and any others who are part of the family circle. The learning process is a community affair, the community being the family, though not exclusively. The broken family accordingly takes its toll, and the child no doubt finds it more difficult to learn his skills than he would in a family that has reasonable concern for his well-being. The peculiar virtue of the family in nurturing the child is its capacity to appreciate the child's attainments coupled

with a foreknowledge that he will be better prepared to cope with challenges that are certain to be encountered. Already there is forecast the larger world and the larger society in which he will have to make his way. The school serves as the more impersonal and major institution of intelligence designed to support the child in his further ventures.

Before considering how the various stages within the school can serve to relate the child to the arts, a comment pertaining to preschool is in order. Apparently, the task of preschool is to bridge the gap between the arts of personal involvement, which it is the task of the family to develop, and the less personal arts, which are those of the school. In the one the care is solicitous (often over-solicitous); in the other it is objectively conceived (often too objectively). In either case the rationale consists in a happy combination of satisfaction and satisfactory attainment. Coupled with the joy of learning how to do something, there needs to be an explicit realization *that* something was learned, even though the latter appears to come in view only after the former has been learned. The preschool, I assume, purports to broaden the environment, in that it excludes the family in those activities that are peculiar to the school. Its design makes inevitable a reduction of the solicitous care which the child-oriented family displays. The school has the task of easing the child into a somewhat more precarious environment with new toys, games, and an increasingly severe discipline. A part of this environment includes the ever-explosive relation of youngsters facing one another and supervised without the tender bias of parental concern. A new dimension in the world is accompanied by a new opportunity for arousing his curiosity about things in a rather controlled environment as well as with the indispensability of learning manners in a peer group.

Both in theory and in practice there is reason to conjoin

manipulation of things with a lively sense of interplay of minds. The one is necessary if the child is to muster sufficient force in coming to terms with the world; the other adds to the effectiveness of intelligence. Manipulation is the test of one's mastery over things. In the absence of it, the child loses contact with the world. And his idle curiosity, so potent a factor in his development, withers into empty sentiment. Manipulation is motor, but it is ideational too. To seize upon and apply ideas is no less necessary than the body for doing things. Although intelligence has subterranean sources within the child, he cannot develop far without feeding upon other minds. His appreciation of the learning process requires him to acknowledge his appropriation of ideas from others. Without such appropriation, he cannot move deftly in exploiting nature. The employment of motor skills demands a sureness, a confidence, uninhibited by doubts or self-pity or other aberrations. The play of intelligence is quite other. It is an interplay: a give-and-take, a weighing and balancing, a willingness to entertain, to be quizzical, and to reject or accept ideas. It is opposite to the manipulative in that even when he rejects, he needs to preserve that humility which respects another person as a source from which ideas, suggestions, and criticisms may come. Not wholly inner directed, the child can come to the realization that his idle curiosity has sources in his involvements with his peers and that it gets expressed in his actually altering things. In this way the child can come to see that the manipulative and the social are complementaries, each necessary, and each with its own logic and rewards.

The advantage offered by the preschool is clear: it makes for the child an ease of transition from the family to the world beyond in the hope of minimizing traumatic effects upon him. In the bourgeois world of our times this would appear to be helpful. A characteristic of the times is that social life has

shifted from the home to the outside—the school, the playground, the canteen, the camp, as well as to a host of other institutions appropriate to age, development, and sex. The child needs to make his way in the expanded environment and thus to be less dependent on the direct presence of members of his family. The reason for this new kind of orientation goes deep into the character of the world, which is dominated by science and technology and which manifests, among other things, mobility of the family, a society of specialists and of urban dwellers, industrialism, and even global concerns—all of which tend to outmode familialism and parochialism.* The magnitude of the task by which one comes to terms with others in an urban setting is appalling. To learn such an art and still to display integrity marks an enviable achievement. It is an art, not of etiquette, but of manners that contain a wealth of human expression, including intelligence, spontaneity, learning, sensitivity, wit, humor, warmth, honesty, and, no doubt, some genuine sense of commitment. The moulding of such traits into an authentic pattern of life, if at all possible, is nothing less than greatness. I wish to return to this theme in the next chapter; here I wish only to suggest that the art has its foundations in the way in which the child masters the arts of personal involvement and comes to terms with others, who are not taken for granted as if they were part of the family circle, as well as with things. If the preschool successfully introduces

* As a beginning to an understanding of the problem, one may advantageously turn to Louis Wirth's "Urbanism as a Way of Life," *American Journal of Sociology*, XLIV, No. 1 (July 1938), 1–24. Cf., for example, when he writes: "The contacts of the city may indeed be face to face, but they are nevertheless impersonal, superficial, transitory, and segmental. The reserve, the indifference, and the blasé outlook which urbanites manifest in their relationships may thus be regarded as devices for immunizing themselves against the personal claims and expectations of others." (p. 12).

youngsters to the rigors of these objectives, it certainly justifies its existence. And if only bourgeois families enjoy for their children the opportunities of preschool education, then there is a challenge to see that others, not so privileged, are provided with similarly appropriate opportunities.

If, as we have insisted, some sense of objectivity and impersonality is necessary for introducing youngsters to the rigors of interpersonal relations, it appears reasonable that a sense of objectivity is re-enforced by introducing them also to appropriate objectivities and impersonalities of the world of things, including their structures and their capacities for being manipulated. The level of attainment possible may surprise us, once we see how curiosity may be educed and a creative sense for the exploration of the workings of physical things can be sustained.* There is a difficult topic here concerned with relating an objective and manipulative attitude towards things to a decent objective attitude towards persons; for we traditionally regard the manipulation of persons as immoral and improper, and no doubt rightly so. This topic I wish to postpone for later discussion, and only to suggest now that there is reason to place emphasis upon learning certain arts dictated by the new science, which I hasten to add need not conflict with the development of decent attitudes towards persons.

The Challenge of the New Science for Education

When the child has mastered the elementary arts of personal involvement and has been introduced to the arts of

* My colleague, Professor David Hawkins, along with others, reports amazing successes in teaching elementary science from tender ages in preschool through elementary and junior schools. See his "On Messing About in Science," *Science and Children*, II, No. 5 (February, 1965), 5–9.

interpersonal relations and of simple manipulation of things, along with the concept-formations they require, he is ready to begin mastering the arts of literacy and numeracy—arts indispensable to the industrial world. The learning of these arts and their implications I take to be the central objectives of elementary education. Primitive societies could apparently get along tolerably well without the written word and with only simple forms of counting. The modern world cannot, and no one can participate in modern culture unless he can fluently read and write and speak at least one language and have some competence in understanding mathematical functions and statistics. The major problem here is not where, but *how* he shall become literate and numerate. The problem is how to attain the skills of literacy and numeracy without impairing their functional ends and without loss of the full and rich qualities of human life appropriate to them. If these arts are to serve their masters, they must be so learned that they can be used with accuracy and precision and with a dexterity consonant with the tempo of industrial life. Yet, there is another sense in which it is wrong to attain this mastery if it destroys curiosity, depth of connotative meanings, the joy of discovery, and, we should add, the community of learners and the decent social relationships within which that community exists.

Literacy

Literacy takes many forms, and no doubt the child should not have foisted on him techniques of learning to read or write or speak which are not extensions of what he can directly relate to his perceptions of and involvements with things, processes, and persons, and their various interrelations. I think we must admit that Dewey was absolutely right in inveighing against

both rote and cerebral tasks which are divorced from experiencings and doings and which thus remove the child from activity meaningful to him. In any of its manifestations, if use of language is not meaningful, it may better be foregone. What the newer philosophy from Wittgenstein and others emphatically calls to our attention is that there are many uses of language and that a wide variety of uses may all be appropriate. This suggestion can lead to fruitful, new approaches to the learning of language. A consideration of concrete nouns, abstract nouns, adverbs and adverbial phrases, to mention only a beginning, suggests the need for new experimentations in ways of teaching children to become literate, especially when the experimenter constantly bears in mind that linguistic expressions are always to be related to extralinguistic realities with which they are correctly associated and for which they may create a completed form.

This relation of language to things and undergoings is certainly part of Dewey's fundamental philosophical outlook. Experience is not just cognitive, nor even primarily so. It has multitudinous forms, which include aesthetic, practical, and intellectual dimensions, including their various interrelations. Literacy thus goes far beyond cognitive apprehensions, even under optimum conditions when cognition involves spontaneity and creativity in concept-formation at whatever level it may occur. Literacy also goes far beyond utilitarian demands for making practical arrangements and for communicating and acknowledging information and requests so that one can carry on the formalities of organized social functions. Literacy is necessary for the acquisition of knowledge and for "getting along" in the world, but equally important it provides opportunities for the expansion of the human spirit in the poetic and lyrical dimensions, without which life is impoverished. The poetic and the lyrical—the two need to be combined and

invariably are, such that poetry as a making is fused with the lyrical as the rhythmic and moving qualities of life.

Literacy is not, it becomes clear, an independent activity. It is not just a phrasing of something already known, and therefore it is not a mechanical transcription of something already completed. On the contrary, it is an activity, creative as well as useful and informative. Closely associated with nationality, language, along with folklore and custom, is no doubt properly recognized as a characteristic of the life of a people. Just as differences in language make people talk differently, so also they make people think differently and act differently and feel differently. There is no need to go into the question of the adequacy of translations from one language to another, but from the fact that translations are never quite adequate, we are entitled to conclude that language expresses a dimension beyond the cognitive. The learning of language is an art, a necessary one, if a person is to participate in his culture. Because a natural language cannot fail to embody the spirit of a people, it deserves a central position in the curriculum of the elementary school. To learn a language is to have one's character shaped such that one may be fit to participate in a sophisticated society. Without a fluent use of language, feelings are dumb, action is limited and divisive, knowledge is rude, and the creative spirit is stifled.

There is an important objection to this account of language. If, as has been suggested, literacy is an expression of extralinguistic and non-cognitive matters, is it not also true that language is parochial or nationalistic or possibly even chauvinistic in its employments? There is some truth in this objection. If language is fundamentally an expression of undergoings and mores and of culture, does it not necessarily divide people into culturally disparate societies and thus prevent cross-cultural

communication? Much of the history of the world has actually answered this question in the affirmative. Nationalistic and religious conflicts and warfare have certainly been a dominant part of history, and continue to be so. Aggressiveness, supported by language barriers, greed, economic interests, and ideological differences, has served as a basis for collective antipathies and violence of increasing magnitudes. The traditional pattern of love for in-groups, hate for out-groups, has too much reality for the safety of modern society. The picture, though not black, is dark gray. But the important question is whether this account of language is correct. Surely not all language is so embedded in the cultural concerns of a single society that it prevents understanding of other societies. Cultural relativism carried to such an extreme is surely insupportable.

There must be ways out of the impasse of cultural relativism. One of the most usual is that of attaching pre-eminent value to the cognitive use of language, and in some sense this is a position well taken. Whatever other functions language has —and it has many others—one of them is to express propositions which are true or false, or at least which possess a degree of probability of truth or falsity. The formal contradiction that is supposed to result from the denial that there are true propositions, a statement which itself is said to be true or false, is no longer very formidable. But what is formidable is the employment of science, utilizing all its safeguards, for deriving constantly more accurate and corrigible statements about the world. Modern science connotes two things: it is experimental and it is mathematical. Both of these aspects of it are difficult to explain precisely, and it is not our task to try. But there attaches sufficient importance to mathematics—a sense of numeracy—to focus upon it as an indispensable subject of study if one is to have any appreciation for the production of knowledge, which figures so large an aspect of modern culture. Along

with literacy, it surely belongs to the elementary curriculum if the object is to help the young to become full-fledged participants in society.

Numeracy

Whereas the function of literacy is to expand the human spirit in all its richness, the function of numeracy is to concentrate the spirit upon precision and economy of expression in order to cut through, even if it does not destroy, the qualitative richness of things. "One person, one vote" cuts through to an essential correlation, it does not belittle the worth of a person or of a vote—quite the contrary. Nor does the formula, $s = \frac{1}{2} gt^2$, detract from the qualities of a falling object, even if it sometimes detracts from a person's dignity. I am not suggesting a Renaissance notion that all science must be mathematical, although it may be valuable to regard nature as if it were written in mathematical characters. I insist simply that science and technology as ways of discerning truth in the world are so thoroughly committed to questions of measurement, degree, and correlations that a vast darkness is the lot of one who is not with mathematics. So important is it for conversing about our world that the child is profitably introduced to it as soon as he is able to understand it. And surely this is not later than the beginning of elementary education.

There is, of course, danger of traumatizing the youngster by introducing to him mathematical notions beyond his capacity. But this danger exists with respect to any kind of learning. True, with respect to mathematics the peril has become a kind of cultural trait, and because of its roots in the mores, it is especially difficult to combat. Such a peril, however, needs to be overcome; for next to illiteracy, innumeracy is the gravest

cultural fault of the day. Some philosophies, from that of Socrates to that of modern existentialism, attempt in the name of humanism to justify the exclusion of mathematico-scientific culture. But in the modern context this exclusion has the effect of reducing their power to contend with primary forces at work in society and of making their philosophies that much more irrelevant than they would otherwise be. Such philosophies sacrifice relevance for dramatics, and rely upon a symbolism weakened by preciosity. In contrast, Whitehead's attempt to bring together mathematical techniques (in the method of extensive abstraction) and developmental techniques (in the genetic method) commends itself in that it makes both abstract numeracy and expressive literacy germane to the exploration and knowledge of reality.

The young child is in a position to understand numerate levels of abstraction. Professor Bruner insists that virtually any subject can with intellectual honesty be presented to the child at his peculiar level of development and that he can grasp it.* Empirical studies have indeed shown that very young children are capable of working out complex mathematics, such as Archimedes did, in connection with balancing a beam on a fulcrum. Moreover, it has been discovered that they can even formulate correct hypotheses of why, when there are knots on one side of the beam, the two ends of the balanced beam are not equidistant from the fulcrum. The child's ability to grasp and formulate mathematical constants in matters of this sort appears to be less one of the complexity of the mathematics than it is one of the manner and the excitement engendered in stimulating the child to work out the questions for himself. Apparently, we have much yet to discover from a truly empiri-

* Jerome Bruner, *The Process of Education* (Cambridge: Harvard University Press, 1960).

cal approach to the learning process. Even so, the evidence suggests that a stage of "pure science" expressed in mathematical laws may be more appropriate for youngsters freshly awakened to a curiosity about the structures of nature than to mature scientists who rely less upon a numerate innocence about nature and more upon issues posed by their scientific forebears. Just because innocence is a necessary ingredient in science, we may well encourage it, even in sophisticated mathematical clothing, in a youth encouraged to see and to invent and to manipulate in his own unspoiled ways.

As in literacy, so in numeracy there are two considerations that qualify it as worthy of a pre-eminent place in the curriculum: it possesses intrinsic values and it is a commitment of contemporary man to his culture. The intrinsic values have long been acknowledged. There is joy in being able to express decisively, precisely, and with economy, relations that exist in nature. Gravitation, Boyle's law, the conversion of matter into energy—these are decisive formulations that express natural relations in engaging ways. They exhibit the intellect at work at its very best, and they provide man with a joy of discovering the timeless in the timely. This pursuit is one of the magnificent human accomplishments and it is one that the child, under proper direction, can create in his own magnificent fashion. Finally, it has the aesthetic virtue of significant form in contrast to the equally impelling aesthetic virtue of literacy, which gets expressed primarily in richness of content rather than in simplicity of form.

Finally, numeracy is contemporary man's commitment to a culture in which mathematical, experimental science sets the stage for whatever drama he can make out of his life. Knowledge of this science is acquaintance with the ambiance in which he may employ the world as his theater. He can make the most of the theater only as his crude, first-hand generaliza-

tions are supplemented by the precise, established generalizations that are of the essence of science. This science creates new—and sophisticated—perils for man. Contemporary man must be comparably sophisticated if he is to be equal to the challenges of a culture oriented to a scientific-technological complex.

Secondary Education as Cultural Sophistication

Besides the arts of personal involvement and those of literacy and numeracy, there are others necessary for anyone who would be of his times. I suggest that we call them the arts of cultural sophistication. These latter may be distinguished from those of literacy and numeracy in the emphasis to be placed upon a wisdom about cultural affairs rather than upon innocence and spontaneity in the freshness with which the child looks upon persons and things.

The shift in emphasis from primary to secondary education —and emphasis it is, for surely no one with reasonable intelligence can live in a society without becoming sophisticated in its ways—is upon cultural attainments and cultural drives rather than upon linguistic and mathematical expertise. The more sophisticated arts of cultural attainments are concealed in symbolic terms, decipherable only as one has protracted acquaintance with the symbolism, such as in government, history, and the fine arts, along with specialties that are peculiar to a given society in the fields of business, folklore, philosophy, religion, sports, and the like. No doubt young children can and should be introduced to these cultural attainments, but a more intensive study of them seems appropriate to an age of puberty when one looks anew, not so much at the natural world as to that of sophisticated cultural arrangements. Government, for

example, then becomes something more than ruler and ruled, and the subject might well excite nice questions of social power, vested interests, consent, groupings, legal fictions, and public needs. Such topics as these may be analyzed in depth, and interest in them may be sustained by a sense that the student is learning about himself and his people in uncovering unsuspected layers of social life. Similar analyses are possible in other cultural areas where profundity of investigation reveals deep-lying forces that have moulded the ethos of a people, whether these exhibit contradictions in the make-up of a people or a more harmonious organization of institutional life centered upon some focal energies.

As an institution of intelligence, the secondary school cannot avoid the inclusion of subject matter in the curriculum. There is really no dispute about this, however much dispute there may be about what that subject matter should be, what approaches should be taken toward it, and what kinds of consideration should be given to the students who are introduced to it. At this point, one comment, even if cryptic, may suffice on the topic of the consideration to be given to students. They are persons and this fact had better not be forgotten in concentrating upon subject matter. The question of content, however, that is, the question of what subject matter should be studied and how intensively, is controversial. Such light as we may be able to throw on it will have to come mostly from enlightened theory of the purpose of education.

Subject matter pertaining to any topic of cultural sophistication is illimitable. All that we can hope to suggest for delimiting it is a reliance upon the principle of relevance. Unfortunately, in the application of this principle we cannot avoid all ambiguities. History, government, literature, the arts; and the like—such topics are not intrinsically worth treating. They are in themselves only pigeon-holes for filing information which

has been passed on from generation to generation. There are, however, two considerations which may transform the lifeless topics into burning, apposite issues, and which may convert inconsequential information into indispensable resources for pursuing those issues to decisive outcomes. The one pertains to the learner, who needs a teacher to bring to bear upon him the subject matter in a way which fires him to pursue it on his own. This consideration has been amply discussed by educators and laymen; its correctness in principle need not be debated, however much it is ignored in practice. The second consideration, however, has received little attention and is worthy of treatment, namely, the institutional relevance of subject matter to the authentic concerns of a society.

The practical arts represent the sustaining power of a society. In an institutional sense, cultural relevance will be determined by them. Ideally, these arts will fit together in some kind of harmonious pattern, and the cultural focus of a society will be set by the dominant arts, to which others will in general conform. Some societies may be principally dairy societies, others agricultural, others industrial, etc., whatever their specific definition. Practically, the patterns are never quite clear. A number of foci are likely to be the case. Moreover, conflict is certain to be present, and clashes of interest can be resolved, not by looking to past harmonies, but only by creating new ones. Yet it seems clear that relevance may be determined, when the ideal state does not prevail, only by looking to the actual issues and the reasonable outcomes that they may hold. This condition contains the key to the understanding of why the principle of relevance is itself ambiguous. Where controversy exists, the antagonists make different assessments of what are to be regarded as the authentic issues. Again, some of them look to tradition and traditional ways; others to new answers and the establishment of new ways. Still again, ideological considera-

tions may be decisive, and authentic issues ignored. And all of this controversy is bound to be reflected in the school—especially in secondary and higher education, where cultural concerns are likely to be more intensely disputed. The bearing of this discussion on the curriculum is direct. Relevance is to be sought in the practical arts, because these are the arts to which a society is committed. Moreover, there must be some harmonization of these arts; otherwise a society dissolves.

As for our own society, these arts are more deeply intellectually founded than they have been at any previous time. The practical arts exhibit an intelligence inextricably intertwined with that which is found in science and technology. The two are so wedded that they could be sundered only by a catastrophic upheaval—not by romanticists, beatniks, ministers of the gospel, or congressmen. For better or for worse, the scientific-technological complex is a condition of man, the theatre of his salvation or destruction—or compromises. Unless this condition of man is understood, culture can only suffer from the prevailing state of ignorance. The problem is particularly vexing for modern man. Unlike his forebears who could with some ease understand and even engage in most of the practical arts, modern man does well if he masters even one of the complex arts of our times. I am not suggesting he need become a specialist, but I am suggesting that unless he understands the bearing of science and technology on common endeavors, he is by his innocence incapacitated to act or even to pass judgment on matters other than those of immediate and transient personal concern. Lacking sensitivity, he is out of touch with the realities of culture and is helpless to understand what, were they proposed, would constitute likely solutions to the dilemmas of the times. Some illustrations may help.

What, for example, might be the bearing of the scientific-technological complex on politics and the law? I content my-

self with a single illustration—namely, the kinds of questions raised by the development of administrative law. If we are satisfied with analyzing American government as a system of checks and balances among the three divisions of government, we lose insight into powerful forces at work with which government must come to terms. When government and law cannot get on by employing traditional means, new ones must be invented. Administrative law is a branch which does cope with just such novel forces: utilities and communications, transportation and aeronautics; and on the financial and corporate side, securities and labor-management disputes, etc. The commissions established to meet the various issues at hand are intended to provide agencies capable of informality and resilience in facing new and delicate quandaries, while yet retaining an objectivity and rigor sufficient to enforce practices consistent with the general welfare. Consequently, various commissions and agencies responsible for a multitude of tasks and regulations of modern politics need to be created so as to take advantage of the new science and to use the resultant knowledge in meeting the demands of the new corporate and mass society (which itself is already a response to the new science). A study of politics that does not contend with such focal issues of modern life suffers from impotence because it is plainly irrelevant. It cannot but fail as an educational discipline because it is an exercise without intelligence and without significant direction.

Even in poetry, literature and the other fine arts there is reason for relating these activities to the culture out of which they arise and to which they refer. Often it is difficult to do this because so very much of the arts is escapist in the worst sense of the term, namely, as a refusal even to acknowledge the sources from which literature and the arts would escape. Mar-

ianne Moore says that "business documents and school books" are relevant even if "when dragged into prominence by half poets, the result is not poetry." She continues:

> *. . . if you demand on the one hand,*
> *the raw material of poetry in*
> *all its rawness and*
> *that which is on the other hand*
> *genuine, you are interested in poetry.**

I would urge that poetry needs to deal with the outlook of a sensitive mind to a world transformed by the new science, not directly with the institutions themselves. Auden can do the latter as rollicking travesty, as he does in "The Unknown Citizen":

> *He was found by the Bureau of Statistics to be*
> *One against whom there was no official complaint,*
> *And all the reports on his conduct agree*
> *That, in the modern sense of an old-fashioned word,*
> *he was a saint,*
> *For in everything he did he served the Greater*
> *Community.*
> *Except for the War till the day he retired*
> *He worked in a factory and never got fired,*
> *But satisfied his employers, Fudge Motors Inc.*
> *Yet he wasn't a scab or odd in his views,*
> *For his Union reports that he paid his dues,*
> *(Our report on his Union shows it was sound)*

* From "Poetry" (1921), *Selected Poems* (New York: Macmillan, 1935). Reprinted with the kind permission of Marianne Moore.

And our Social Psychology workers found
That he was popular with his mates and
liked a drink.

Auden then asks and replies as follows:

Was he free? Was he happy? The question
is absurd:
Had anything been wrong, we should certainly
*have heard.**

Along with every other cultural activity, the arts require a stimulus from the life of a people and their focal concerns at the peril of merely titillating the soul's fancy. Without this, art loses the qualities of clarification and intensification of experience, qualities Dewey well emphasized in his *Art as Experience*.† These qualities are not necessarily destructive of the abstract mode; indeed, we may reasonably say that the measure of great art is the capacity of the artist to conciliate the two, as a Cezanne, a Bartok, or possibly even an Auden or a Frost does.

By insisting that the arts of cultural sophistication come to terms with the questions of the day, we are prepared to respond to some recent controversies in education. What of "basic education"? Should the schools teach "subject matter" instead

* Reprinted by permission of Faber and Faber, Ltd., Curtis Brown, Ltd., and by Random House, Inc., from "The Unknown Citizen" by W. H. Auden from *Collected Shorter Poems, 1927–1957*, © 1934 by W. H. Auden.

† See especially p. 46 of *Art as Experience* (New York: Minton, Balch and Co., 1934).

of "methods"? What about the psyche of the learner? Should education be concerned with the "whole man"? If we take our clues from the arts, the guidelines are set. Of course we should insist upon basic education. Of course we want students to know history, their own and those of the peoples of the world with whom they are inevitably in cultural contact—or with whom they clash. Of course we want students who are literate and numerate. And of course much else. But how much else?

I would answer, somewhat peremptorily, all we can possibly learn for the perfection of the arts. I would want to qualify this answer only by noting that there are no arts without artists and that the creative process requires one who can summon all his faculties of memory, vision, rationality, sensitivity, capacity to handle the tools and materials necessary for the advancement of the arts, and finally a sense of their relevance to the commitments of a culture. These qualities are indispensable to the institutions of intelligence, and require both subject matter and method appropriately conceived to further the timeliness of sophisticated action. The proponents of basic education do a service in pointing out the stupidities, the foibles, and the vacuities of educational practice. Such practices are indefensible. Nevertheless, since subject matter is illimitable in the absence of a principle of relevancy, the proponents of basic education must select on this principle or else on one more arbitrary and less defensible, whether or not they deign to define it. Provided only that sophistication in cultural attainments never loses sight of the arts of which it is a sophistication, it is assured of being relevant to human concerns. The real danger of sophistication lies with persons who do not quickly grasp the importance of innovations, whether in the realm of theory or in the establishment of new practical arts. Yet, sophistication, sensitively conceived, cannot but be the hallmark of higher education.

The Tasks of Higher Education

Higher education has its own peculiar emphasis. In the absence of a degree of cultural sophistication, it cannot quite be regarded as genuine. Nevertheless, its unique emphasis lies in its creative power, from which flow the resultant accomplishments of creative scholarship. The difficult problem for higher education is precisely that of reconciling creativity and scholarship. Plodding scholarship is not difficult of attainment; the difficulty is to avoid it. And a similar case can be made for undisciplined creativity—the kind of novelty ignoramuses can achieve: partial and short-lived. Lack of knowledge and an unconstrained sense of passionate venture are the best possible qualifications for its attainment. Sometimes its results are impressive, but usually they are tinsels, fast tarnishing. Higher education comes to authentic fulfilment when it contains depth and breadth plus brilliance.

Verbally, it is easy to reconcile in higher education the dimensions of depth and breadth; practically, it is very difficult. The virtues of the verbal expression are worth spelling out if only we remain aware of their pitfalls. For a beginning, we may speak of them as "circumspect specialization"; this has the advantage of placing emphasis upon specialization, which is certainly a necessity for creative work in the arts. The derivation of the term is worth keeping in mind. *Specialization* does derive from *special,* and although the former is often regarded as an ugly term, the latter is not. The latter connotes not only individuality, uniqueness, and concreteness, but also superiority, excellence, and that which is regarded with favor. When we regard specialization with disfavor, we usually prefix it by the adjective *narrow.* The prefix, however, derogates not so much from the activity as it does from a quality of mind that

accompanies it. Clearly, however, the mind can engage in the most narrow of activities without its being narrow-minded. The artist who is incapable of keeping in mind the least details of his composition is no artist, and the scientist who can cope with only two variables at a time, one dependent and one independent, is no scientist. The virtue of specialization is that it permits the specialist to keep in mind a great many details and to weave them into new patterns, thereby laying bare novelties in the subject matter. His love and infinite patience and capacity for creating configurations are of the essence of creativity. But he can be creative only as he has familiarity with his materials and thus regards them in a way that is special. So far from being innocent, his creativity is ultra-sophisticated.

Specialties are a part of modern society that it cannot do without. Yet there are evils of specialism that need to be carefully located. It is not evil to learn in ever greater detail and with ever greater precision what nature is. There is something right in the spirit of nominalism that searches for reality in the most minute detail, for the mind which discloses such realities is the richer for it, especially as the search relates these details to one another. This kind of searching surely cannot be called an evil. I would suggest that the evils are of two sorts and that they pertain to: (a) policy decisions, and (b) the specialist.

The specialist is, as we have said, sophisticated with respect to his speciality, for sophistication is the badge of his being a specialist. Now although specialties are not in themselves bad, they may and often are put to bad uses. A number of medical practices no doubt suffer by being too narrowly conceived. But other practical arts likewise suffer in such widely divergent fields as warfare, pest-control, slum clearance, TV program-

ming, or space exploration. The purposes of virtually all of these arts are defensible, but they get narrowed by the easy exploitation of limited knowledge. Knowledge, of course, is always incomplete, and men must learn to live in this recognition and accordingly to develop intellectual modesty. Yet some of their mistakes can be prevented if only the distinction is clearly made between theoretical and practical issues, especially when the latter are of the nature of policy questions that affect the quality of a culture. Under these circumstances, any particular decision cries out for a wisdom that places the immediate purpose in the perspective of other cultural activities. Health is good, so is the elimination of pests and slums, and likewise the protection from invasion and the investigation of space and of the bottoms of the oceans. But every decision to realize such ends is economic, and therefore needs to be considered in relation to alternatives, as well as in relation to its effects upon other aspects of life. Hence, with the best of intentions, those responsible for political decisions can make egregious errors in slavishly following the recommendations of specialists. Specialists are necessary, but specialism that dominates policy decisions is the root of much that is wrong in modern society. It is the defeat of intelligence and may be regarded as the chief "pseudo-institution of intelligence."

The other evil of specialism is one that pertains to the specialist. Although it is less disastrous for society, it counts as a genuine loss of values in the world and is not lightly to be dismissed. The specialist is prone to the disease of concentrating so thoroughly on his immediate interest that he fails to acknowledge not just wider segments of reality, but even the particular context in which his specialty falls. The medical man who ignores health in the study of disease or the expert on slum clearance who disregards those who are dispossessed in

order to clean up the slums, etc., have incapacitated themselves as human agents. Having lost touch with the realities, they engage in projects which, though meaningful in a limited way, are absurd. The question is whether much of our science has also become absurd in this way, and this question leads back to our topic of the curriculum in higher education.

Higher education has the double purpose of conserving high culture and of advancing knowledge. The result is not a happy one, for the two purposes more often conflict than not. Three major considerations define the nature of the conflict; they pertain to: (a) methods (b) end results, and (c) social context.

However correct those critics are who point to the similar values of science and the humanities,* the fact remains that science and the humanistic studies do differ in the training which is required, the methods employed in pursuing their ends, and in the kinds of insights to which they lead. No detailed discussion of these considerations is required, even though there are some nice points of controversy. Humanistic studies are literary and artistic, require special training in languages, and demand high sensitivity to things of the senses and feelings. In contrast science is prosaic, utilizes measurement and mathematics, and survives or not, depending upon the rigors of the process of verification. The tools are different, the mentalities are different, and the expectations and appeals are different. These differences do not preclude a community

* Cf., for example, J. Bronowski, *Science and Human Values* (New York: Harper and Row, 1965); A. N. Whitehead, *Science and the Modern World* (New York: Macmillan, 1925), chap. xiii; and more recently, David Hawkins, "The Informed Vision: An Essay on Science Education," *Daedalus* (Summer, 1965), pp. 538–52.

of scholars and scientists, but they make it more difficult in that there is required considerable imagination, tolerance, and the cultivation of new appreciations on the part of both.

Even so, a further strain is created by the end results. The scholar's rewards are mostly those of the ivy tower; the scientist moves from the laboratory to the market place and the Congressional hearing and back. The scholar's community is the seminar room, the journal, and those fellow scholars who share his interest; that of the scientist is in the conference, both when devoted to scientific matters and when devoted to political and economic matters. The influence each exerts upon society is in proportion to the diversity of the interrelated interests that are encompassed; and the rewards are incomparable. The high specialization of the scientist is seldom without some power or pressure or political group which is willing to support his researches. The scholar who prides himself on having his work "good for nothing" usually reaps rewards commensurate with his pride. Those who forsake the tower for administrative work often speak well for their former colleagues, but they ensure funds for scholarship only after a healthy budget for scientific research has been allocated.

Finally, the changing social structure has tended to promote the sciences rather than the humanities. Traditionally, humanists have been elitist, if not downright snobbish. The high tradition of the humanities has made itself, often for good reasons, remote even from the middle brow. The long period of training, its vocabularies, and its huge tomes make it unapproachable, save to novices willing to undergo the indignities of graduate study. The tradition has been the genteel one and its members have not usually looked kindly upon the anti-authoritarian democratization that has come more from science than from the humanities. Science and democracy are more committed to the present; the humanities to the past. The rebel

humanists—those who create the literature and theater of the absurd, pop-artists, composers of electronic music, and the like —give little comfort to those steeped in the traditional humanities. It is true that the rebels insist on being more pointedly contemporary and thus are more in the rhythm of science than in that of the humanities, which are more hospitable to the long span, if not to the eternal verities.

For higher education the problem remains pressing: how to achieve a circumspect specialization which will do justice to the claims of both the sciences and the humanities? In principle this means, How temper science with the humanistic spirit and how liberalize humanism with the scientific spirit? In practice this means, How does one persuade the politicians to adopt a saner view of science and to subsidize it more prudently, and how does one make humanists appreciative of science and sufficiently imaginative to exploit the authentic humanistic qualities of a culture committed to the new science? Science cannot forego specialization, but specialism as ignorance of its own activity, it can and must forego. The scientist who fails to explore the context of his specialty is as equally benighted as the elite humanist who disdains science. The difference is that the one is gaining power and the other losing it. To aid in effecting a more just balance between the two, higher education requires a rejuvenation, both to make it higher and to make it more educative. Without this rejuvenation, it fails to reach its place as an institution of intelligence.

If it is to begin to rise to an appropriate level, the curriculum will need to aim at providing specialists, not just with a knowledge of their specialties but also with an awareness of how their specialties systematically relate to the corpus of science. We are told now that specialized engineers in aeronautics as well as in some other fields have a professional life-span of about ten years. Thereafter their skills and knowledge are

obsolete. Clearly, universities are failing if they do not provide an education which will permit specialists to move from one specialty to another. Likewise, industry is failing if it does not provide in-training study directed towards keeping their scientists abreast of newer developments. Since the institutional emphasis for research has now definitely shifted from universities to industry,* the latter cannot long avoid its responsibility to share the educational burden to increase the professional life-span of its scientists. And surely this should include not just up-dated technical training but also correlated humanistic studies associated with it, political, aesthetic, and intellectual. If research and development can be part of profit-making industry, then industry can afford to accept the obligation to care for the extended well-being of its personnel. Either this, or research will have to be shifted back to government and universities, along with ways of providing for the educational and economic welfare of these scientists.

The demands to be made on higher education become increasingly clear in respect to what it should exclude and what it should include. The exclusions are the simpler matters. Colleges and universities need not exist as marriage mills, country clubs, nurseries, military camps, athletic proving grounds, or as remedial institutes for illiterates or innumerates. Congenial atmosphere, recreation, and the arts of personal involvements need not be ignored; but neither should they be permitted to determine or distort the ends of higher education. Robert Hutchens has eloquently inveighed against the weaknesses and distortions of our colleges and universities in these

* Cf. Fritz Machlup, who writes: "Of the total R&D [as research and development is commonly abbreviated] in this country, 76 per cent is done by industry, 15 per cent by government agencies, 7 per cent by colleges and universities, and 2 per cent by other nonprofit organizations. This, at least, was the distribution of R&D expenditures in 1956–57." *Op. cit.*, p. 145.

respects. To his criticisms, we can only add our applause. He has also shown unmistakably—as have Mr. Conant and Mr. Dubridge more recently—that we have been guilty of indefensible waste both in high school and in the first two years of college. The high-school has failed to excite students and to guide them into the kinds of sophistication of which they are capable. And, as has been abundantly documented, the first two years of college are repetitious, boring, and pointless to the extreme. The failure is not so much in the youth as in the institutions, which for innumerable reasons, have become cluttered, and have only muddlingly and uneconomically achieved their ends. The price is too high, especially insofar as the remedies are quite clear. They include an insistence upon literacy and numeracy, and upon at least a minimum of sophistication in the wisdom of modern culture: its arts and politics, its geography and history, and its scientific ventures and its industrial bias. These matters should certainly not be repeated in college, but they should be deepened and enlightened through the examination of a variety of alternative explanations, and the insights they involve.

The exclusions are suggestive of the inclusions. Whether or not students in colleges and universities are stimulated to engage in the advancement of knowledge, they can at least be expected to have some clear notions about and respect for what that advancement portends. They should all have a notion of what the new science is—the exploration into microscopic and macroscopic physics, theories of cell growth and physiological functions, the learning process, the new economics (and the Marxian too), political power structures, mass behavioral movements, and the plight of the lost individual, to mention only a few of the obvious topics. Some of the restless minds will want to wrestle vigorously with some of these topics on their own; they will become the important future scientists.

Most will have to content themselves with the humble appreciation that there are endless ways of carrying on new investigations about the world of physical and biological and social things.

Advancements are possible in humanistic studies too, but of a sort less calculated to change the world than to speculate about it or to mull it over, reflect upon it, or just to savor its qualities. The literary and artistic, the historical and philosophic minds—these are the humanistic minds to which a long development of higher education has committed itself, sometimes effectively, usually not. The philosophical orientation (I do not say philosophy) must be the chief of these, for it insists upon relating tradition to the contemporary perplexities of man. Higher education, in whatever institutional form it may take, must contend with this demand. For this reason, higher education fails if it concentrates upon the production and dissemination of knowledge to the exclusion of its consummation. The function of higher education is incomplete in the absence of a consummatory phase which relates past to present and which comes to terms with the ever-changing condition of man. The new science represents above all the condition of man, not as an answer but as a question. The curriculum of the university mirrors the question even if it does not unambiguously answer it. To see what this curriculum in the final analysis needs, we can better turn to the chief quandary of our times, which I would like to pose as the question, What consummatory arts (the liberal arts?) are possible for contemporary man?

IV. The Liberal Arts: The Consummation of the Scientific Revolution

The Question

The liberal arts assume an importance for modern man because he has succeeded so well in isolating them from the practical arts. Modern man has a luxury civilization. As a consequence, he frantically seeks for compensatory goods as far removed as possible from the factory or office. His work contains little of intrinsic worth for him; for the most part it consists of chores to be got over as soon as possible; and his liberation from them is sought in activities or induced states of mind uncontaminated by practical affairs. Primitive societies, subject as they were to the perils of existence, seem not to have had their arts and religion and thought dissociated so completely from their practical concerns as do modern societies. Their songs and dances appear to be more closely expressive of their work and loves; their tools shaped with human care; their religion, a magic intimately linked with good fortune; and their metaphysics a rationalization of their mores and beliefs reflecting practical fulfilments. I

do not wish to idealize their cultures, but it is probably fair to say that their ecstasies were, despite induced seizures and supervening priestcraft, more often a sense of fulfilment arising from successful daily affairs than elation unconnected with them. Modern culture, on the contrary, concerns itself with fine arts, professional athletics, pure intellectual discipline, a belief in the supernatural not effable in the language of things of sense or even of reason, and amusements which are part of a play-world oblivious to the doings and makings of the world of work and utility. Modern society, with all its luxury, thus makes for itself a series of dislocations difficult to set aright. The most nagging question of all seems to be, can we get our society together again, in one piece? I wish first of all to refine the question and especially to observe its connection with modern science and technology; secondly, to examine the role that a broadened conception of the liberal arts may play in achieving consummatory values for modern man; and finally, to suggest directions for revising the notion of leisure in order that it can more appropriately serve the demands of modern culture.

The Question Refined

There is a hunger, no doubt widely felt, for an all-consuming experience by which man can come to his highest fulfilment. This may variously be connected with love, art, religion, or knowledge, or even induced as a kind of mystical experience by narcotics. Freud suggests in his *Future of An Illusion* that as an "oceanic feeling" it may have its origins in the depths of the unconscious. As a naturalist, he is unwilling to regard it as revelatory of some great reality beyond. Surely if it were to be regarded as revealing such a reality, incomparable to anything

known in the world of sense and reason, this would entail either the rejection of this world for another, or at best a tentative acceptance of the temporal world as a preparation for one of pure light and consummation.

There is a difficulty, probably insuperable, in this notion of an ultimate consummation, which is suggested by the title of Freud's pungent treatise. What is illusion and what is reality? Oceanic or all-consuming experiences may very well provide insights. But the question remains, How are we to know whether they are insights or illusions? Strength of conviction, a sense of superiority, an elated state of mind, immediacy of experience—personal states such as these are no guarantee that they reveal truths. The mystic is hard put to say what connections there may be between anything he can do and the ultimate insight conferred upon him. Although he may insist upon faith and prayer and grace, his insistence does not lend itself to making clear any causal connection between his acts and presence of divine consummation. From his point of view, the divine spirit is regarded as having its own kind of existence, far removed from the earthly, and not subject to the crass facticity of the natural world. I am not suggesting that religion may not manifest itself in the natural world. When, however, it does get expressed in the natural world of men's actions, together with their concrete issues, it necessarily rejects the mystic's indifference to worldly things. Less concerned with purity of spirit and self-contained consummatory experience, the religious mind that is world-oriented must wrestle with human finitude and the religious expression of which it is capable. So oriented, this religious mind is less addicted to the flight of the spirit to "the pure upper world" and causes the spirit to be weighted down by its adherence to finite, empirically discernible actions.

A more current version of the oceanic illusion plays upon

the theme of disillusionment. Disillusionment arises from the same source as the oceanic illusion, but is frustrated, and its philosophy is an elaboration of this frustration. It goes by the name of humanistic existentialism, and takes off from Nietzsche's "God is dead." God being dead, there is said to be no meaningful world, and human action is absurd—one might almost say it displays a kind of cosmic frustration. From man's condition of non-fulfilment, there is no exit, only anxiety and vacuity, or possibly even lassitude. "Projects" may be undertaken, but their worth is evanescent and trivial, since their ends have little magnitude. The play is over and life is rounded with a sleep, without consciousness, conscience, or issue. Death is made much of but only because it is regarded from the point of view of the anticonsummatory living, rather than from that of the non-consummatory dead. In this view, science is an idle undertaking and industry an aberration.

There may be a point in this attitude toward man and the world, especially when contrasted with "sweetness and light." Arnold said of this perfection that "He who works for sweetness and light, works to make reason and the will of God prevail. He who works for machinery, he who works for hatred, works only for confusion. Culture looks beyond machinery, culture hates hatred, culture has one great passion, the passion for sweetness and light." Arnold was against anarchy because anarchy is against culture and "culture, which is the study of perfection, leads us . . . to conceive of true human perfection as a *harmonious* perfection, developing all sides of our humanity; and as a general perfection, developing all parts of our society." In our anti-Hebraising, that is, our depreciation of religion, we may find it difficult to adopt Arnold's notion of perfection and especially that "harmonious perfection, developing all sides of our humanity." The question is whether our skepticism should reach so far as to cause us to repudiate all

aspects of perfectibility because we see the shallowness in, if not the impossibility of, developing all aspects of human perfection. What we lose in breadth, however, we may gain in depth.

Yet this concern with depth of human personality contains its own peculiar limitation. It harbors a bias that leads one to renounce a meaningful concern with society. Arnold saw this defect in an uncommonly clear way, even if he was frightened by its "machinery." To give up all notions of perfectibility is to give up all notions of meaningfulness in life and thus to espouse "the absurd." And again, to renounce the transindividual claims of culture is to reduce what could be authentic consummations into an affair of private titillations. I do not mean to suggest that consummation is just a matter of a "being-with-others"; it is this but also much more. It may be a matter of being for others, which can be especially difficult when, as often happens, the others don't know their own minds. Then what is required is not a cosy togetherness but rather a hard analysis that lays bare why it is more reasonable to do one thing than another. In this case, the discussion, debate, and warranted decision are necessary if arbitrary and capricious choice is to be avoided. And if freedom is regarded as action undertaken following upon such decisions, then to insist that all such decisions are absurd and without real consequence for man is itself absurd. We may favor either absurdity as the principal trait of life or freedom which is expressed as the attainment of ends vital, consequential, and consummatory; but not both. The ontology and the ethics, unless jejune, simply do not fit together. And, I would add, each by itself is too incomplete to constitute with verisimilitude a picture of either man or the world. Another try is therefore appropriate.

Human choice is a function of alternatives within life. In

Christian Bay's terms it involves capacity, opportunity, and incentive; * and if any of these conditions is missing, freedom is aborted. Bay's terms are suggestive for unraveling some of the tangles in connection with a difficult topic. In the case of human choice, we need to know whether alternatives do prevail and whether they do make a difference. I would avoid arguing here the nice metaphysical questions, and simply acknowledge the commonly made distinction between two sets of terms, often taken to be synonymous, but which are not: determinism and indeterminism, and compulsion and freedom.† If freedom is to be regarded, as I believe it is, as significant choices that a person can make in order to realize alternatives, then his freedom always pertains to concrete matters. At least they become concrete at that point at which choice becomes significant. As applicable to human life, the question may be posed as that between being and not being; or better, so as not to confuse it with philosophies that employ the terms idiosyncratically, between life and death. Should one choose to live or to die? The question is of course too blunt. Who would raise such a question and why? Clearly, it needs some explanation, for, out of context, it is an odd one. In the beginning it does not arise; only later. The beginning of life appears innocent enough and full of possibility. It possesses momentum, excitement, creativity. Like health and fortune, it needs no justification. It is self-justifying, and it makes no sense to ask whether death is better. Only after the mind suffers "the slings and arrows of outrageous fortune" or when one suffers "a sea of troubles," then, as Hamlet does, one may

* *The Structure of Freedom* (Stanford: Stanford University Press, 1958), p. 65 and *passim*.

† In *Knowledge and Society* (New York: Appleton-Century, 1938), chap. vi. The University of California Associates have left little doubt as to the need for such a distinction.

properly question life, not innocent and emerging life, but "the calamity of so long life," the "grunt and sweat under a weary life." When at every turn life is a suffering, an enduring, then one may want to cry out:

> *For who would bear the whips and scorns of time,*
> *The oppressors wrong, the proud man's contumely;*
> *The pangs of despis'd love, the law's delay,*
> *The insolence of office, and the spurns*
> *That patient merit of the unworthy takes,*
> *When he himself might his quietus make*
> *With a bare bodkin?*

The alternatives exhausted, the decision might then be made; yet the alternatives may be inexhaustible. Shakespeare understands this "sicklied o'er with the pale cast of thought" and the conscience that makes "cowards of us all." The Hamlet in us all is not innocence, and does not permit us to ask innocently whether we are to be or not to be. The question makes sense only as we spell it out solemnly and then come to recognize at the end complexities such that "their currents turn awry/ And lose the name of action." Indecision is a result of incapacity to exhaust reasonably or unreasonably the alternatives. Mad persons who vacillate are not free, nor are sane ones who are rightly confused. And to call honestly induced indecision a decision is to play on language rather than to disclose a truth.

It may not be overly contentious to remind ourselves that Hamlet was a prince, who did not even have the responsibility for practicing the art of ruling. I have no interest in denying a range of interests outside the arts—especially those arts that a man regards as being wholly unsuitable to his own appreciation of life. His is then a decision pertaining to integrity and

compromise, and especially pertaining to the point at which he feels he must refuse to compromise. But I would suggest that without a respect for the sustaining arts, there is no basis for choice but whim or exploitation, and the vacillation or tyranny that goes with them. The importance of the sustaining arts is that they provide clues to the answers to two kinds of questions, neither of which is quite separate. In what lies the degradation of man, and in what lies the sense of reality for man?

Degradation and Consummation

Principally, it seems that degradation is a distortion of consummations in men's relations to the world and in their relations to one another. Consummatory experience is not a sensation of pleasure, but an activity pleasurable in its course and satisfying in its result. Freud saw this clearly in distinguishing as he did "fore-pleasure" and "end-pleasure." Although he made the distinction in connection with the sexual act, clearly it has relevance to all consummatory activities. Results are accomplished only as a consequence of considered activity from which they issue. However much the activity is intrinsically pleasurable, it requires also a sense of direction and actual accomplishment. In persistent activities in which either pleasure or accomplishment is missing, there is distortion, a failure of consummation, and degradation. Activity without pleasure is mechanical, a chore to be got over as quickly as possible. A life of such activities is dulling, really drudgery more than life, and certainly not self-justifying. What, on the other hand, of consummations without previous preparation, without reference to antecedent activities of which they are consummations? If there is experience of this sort, it is weird or unreal, merely

fortuitous. Men may be searching and hoping for such experience, but it is doubtful whether we should even call it by the name. Experience is not like sensation; it is revelatory of connections of things of the world, and in the absence of a disclosure of such connections, it loses its worth. It no longer provides us with a sense of having mastered something; it only shocks us with its genie-like appearance; it is an intruder which, however pleasant, is unaccounted for, and accounts for little.

Degradation is not just a matter of the individual psyche; it is equally one of society. Activities are incomplete without their rewards, and rewards that are externally related to them are not genuinely satisfactory—just as pecuniary rewards are commonly recognized as not satisfactory to those who spend their energies in debilitating work. But worst of all is that condition of life in which one is asked to work when the external benefits accrue not to the worker but to another. This kind of exploitation is obvious enough, and needs no elaboration. But what is not so obvious is the effect upon the exploiter and the sort of consummatory value he is said to enjoy. Here too there is a gap between activity and end result. The enjoyment bears no intelligible relation to the sacrifices that have made it possible. In a pecuniary society, the complex financial activities may obscure an actual gap, for there may be manipulations which are confused with productive activities—even with those that are broadly enough conceived to include managerial and other talents required for operation of industrial pursuits which supply the needs of a society. An example reduced to simple proportions may help.

Persons do eat, and eating is an activity which is usually pleasant and not degrading. People consume food. Is the consumption of food therefore a consummatory activity in the sense of a satisfying accomplishment, and not just a satiation?

Generally speaking, it is probably not; but at its best it is so; and at its best it is a festival—a feasting in which a whole company partakes. Festivals are gay, having their fore-pleasures and end-pleasures; but festivals are sad too, for they are tinged with thought and meaning and intensification and vivification of life. The consummatory value attaches to the whole complex and any discordant note affects the gaiety of the festivities. A misfortune to one produces a hush over the whole party, for it is the whole party which is the locus of the consummatory activities. This may be an idealized picture, but not overly so. Josef Pieper has perceptively developed the theme in respect to "celebration." * Celebration is not just a breaking through from daily habits; it is not a kind of wantonness; on the contrary, it is a heedful activity, which even in its gaiety penetrates to depths of life expressed in a communal way. Hence, where there is celebration there is also communion, a sense of identity of all who participate in the preparation and enjoyment of it. And in an important way. Pieper makes it a norm of life, not just an exceptional activity. Life led deeply is a celebration of human existence because it is an experienced realization of layers of meaning and a sense of wholeness; in short, it is consummatory, a continuing drama coming to its continuing fulfilment.

Mechanical, insensitive, or abrupt actions impair the spirit of celebration. This occurs, for example, in the bolting of food instead of in the partaking of it. The distinction is a common and important one, marking the difference between an elementary function and a sensitive activity—between *gourmand* and *gourmet*, *fressen* and *essen*. The distinction clearly marks the difference between the human quality capable of raising life to the level of consummatory experience and the animal

* Cf. Pieper, *Leisure, the Basis of Culture*, trans. Dru (London: Faber and Faber, 1952).

quality, which only faintly approaches it. In its brutish sense, exploitation is the failure to heed those who are responsible for making achievements possible and to share with them the culmination. From the consummatory point of view, it is a distortion in that it disjoints the course of activity from its ends and therefore does violence to both. From the moral point of view, it constitutes injustice, and thus breaks communication and upsets human relations among men. Such foreshortening of consummation attenuates its quality and reduces the institutions of intelligence to institutions of power.

Clearly, there are two dimensions of the continuities involved in consummatory values: the sharing of the rewards by those who are responsible for their creation and the establishing of connections which make the continuities real. The first dimension is essentially moral; the second cognitive. The second deserves further consideration.

How the New Science Requires a Reorientation of the Liberal Arts

The practical arts contain the germs of consummatory values. But often infected as they are with folklore, consummatory values may be aborted. Modern culture more than any other, has developed reliable methods for ascertaining connections that hold within natural processes, and especially so in the new science. To ignore the new science is to adhere to some kind of folklore or romanticism which erects individuality from subjective feelings. Although folklore does possess the advantage of creating solidarity within a society, it is nevertheless precarious in that it may lead a whole people to disaster. On the other hand, although reliance upon scientific technology may lead to ventures that turn out badly, it holds more

promise of success than does reliance upon folklore. And even if not, the method is still useful for locating the point at which calculations go awry and for evolving new predictions of what is likely to occur. Our question is whether scientific knowledge can assist in the process of establishing ends and therefore of engendering new consummations. This consideration is crucial for determining our belief in the role that science can play in social life. The critics who refuse to assign science to a central position in shaping the ends of social life challenge us to be clearer on the forces within culture that limit peoples' actions. To meet this challenge, we need to be clear, first, on the definition of culture, and second, on the place of utilitarian concerns within culture. The two are closely related, but distinct.

Definition of Culture

Broadly speaking, definitions of culture may be divided into two classes: those that include and those that exclude practical action. The latter are traditionalistic and formalistic; the former are functional and holistic. There are of course others, but this distinction serves the purpose at hand without prejudging extraneous issues. On the one side, we may reasonably place those who regard culture as the best that has been thought and felt and who concentrate upon the transmission and perpetuation of them. This idea of culture emphasizes the refined sensibilities, both as contained in art and literature and in the perfection of the intellect which becomes expressed in abstract systems of thought. Together they constitute a kind of romanticism combined with pure mathematics that is erected into a metaphysical structure. The product contains a dilute mixture of Matthew Arnold and Plato, spiced with themes from T. S.

Eliot. Except for the cultivation of etiquette or good manners, this idea of culture insists on keeping distinct mind and action. Since mind in its highest cultivation is the distinguishing characteristic of man, the intellect and the refined sensibilities constitute the unique expression of culture as that for the sake of which other things are to be done. This idea of pure culture comes down from the high tradition in philosophy and smiles kindly on the classics. From a knowledge of them, man is supposed to be prepared to cope with the things that count most. Mathematics, however, remains as the sturdy structure of reality, a knowledge of which is most to be sought for.* Truth is thus essentially an affair of the mind, and action is a kind of compromise, sometimes helpful in attaining truth, but not a part of it.

In contrast to this idea of culture, there is an opposite one that insists on preserving the unity of thought and feeling and action within the social context. The resultant integrity pre-eminently regarded as constituting the ideal of culture. Accordingly, thought is not only by itself incompetent to provide the ends of culture, but is also, in the absence of feeling and action, quite incomplete. Thought is thus regarded as fully intelligible only when it is embodied in moving ideas that are capable of realization in consequential actions or in something closely derivative from them. So far as it figures in this kind of cultural ideal, its expression requires beauty and utility to complete it. Otherwise it would not serve the ends of life, and

* In this vein, Anthony Standen has written, "There is one science, and only one, that is actually true. That is mathematics. The others, from physics downwards, do not lead to known truth but only to probable opinion." *Science Is a Sacred Cow* (New York: E. P. Dutton, 1950), p. 175. According to this view, science is concerned with the abstract, which alone is regarded as real. Standen writes, "For physics is not about the real world, it is about 'abstractions' from the real world, and this is what makes it so scientific" (p. 61).

it could be domiciled only in a hothouse of "abstractions." In its relations to things of elegance and use, thought is thus a prime ingredient of culture. By overcoming its isolation, it achieves a degree of concreteness which guarantees to it both vitality and relevance.

Utility and Culture

These two ideas of culture thus contain two attitudes toward utilitarian pursuits. In the one case, utilitarian actions are regarded as intrusions that undermine the dignity of man. They are viewed as obstacles to the human calling, which disdains interference with pure thought and with feeling that should remain uncontaminated by compromising earthy concerns. In the other case, utility provides the ground from which thought and feeling can arise and on which they can have their ambiance. Cut loose from the ground, Ariel-like they soar into nebulous shapelessness. The opposition between the two views of culture finally is expressed as that between an elite and a democratic organization of society. In the one case, the division of functions requires the support of a division of classes. In the other, the interplay of activities requires the interplay of persons and interests in the articulation of social life. If we adopt the second idea of culture, we still are obliged to explain the sense in which science may shape the ends of social life. Are the critics right in insisting that science does not shape these ends?

They are right if to "shape the ends" signifies some automatic and committed ends, some destiny that men are powerless to alter. Such an attitude is a denial of the adage that knowledge is power. No doubt the truth in the adage is that knowledge allows a kind of choice that men otherwise would

not be allowed. In that choice surely resides one virtue of knowledge. If, however, science commits us, it can be only because we are committed to science—to knowledge, and, should we not add, to human invention? Even so, the commitment is a limited one, for within it, choice is still ours to make. By this, we mean to say that science and technology do not eliminate choice, but rather they transform old into new alternatives from which we may choose. A few illustrations may serve the purpose of clarifying this statement.

If Professor Lynn White is correct,* the invention of the stirrup altered the whole character of medieval warfare and made for the blossoming of feudal society. By the introduction of the stirrup, the knight was enabled to use his horse not just for getting from *a* to *b*, but for making it an intrinsic agent of warfare. Because of the lateral stability the stirrup provided him, a knight could use his lance well secured under his arm to run through both light armor and his opponent so armed. Clearly, the knight did not have to engage in such warfare—except, of course, if he wanted to remain a knight and if others were engaged in such warfare. But having made the choice and his opponents having made a similar choice, heavier armor was the indisputable answer for better protecting himself from the new kind of thrust. Along with heavy armor, however, were required heavy armor-makers, as well as a whole retinue to dress the knight and to care for the perquisites of his office. Now the metal might have been used to make heavy ploughs instead of heavy armor, and medieval man might have turned away from warfare to making ploughshares and to the more bucolic, if somewhat more densely populated, life that the new agriculture would have entailed. The stirrup and its attendant technology made possible, even if not necessary, a new kind of

* See his *Medieval Technology and Social Change* (Oxford: Clarendon Press, 1962).

warfare, seemingly attractive to the growth of knighthood. But the commitment to knighthood did, according to this version, make necessary the adoption of new techniques if one were to compete in this profession.

The same principles do, of course, also relate to modern warfare, whether of the trench-type in World War I, or of the more mobile type of panzer divisions in World War II, or even in the option of a newer type employing nuclear and jet-propelled instruments such as have been more recently developed. Again, the same principles hold. The commitment to the new technologies is not really an open question. Advanced industrial societies cannot afford to ignore the basic innovations, both in their theoretical aspects and in their practical applications. But the significant choice remains as to whether they employ their talents to enhance human life in the larger social context or to detract from it for the purposes of more limited social objectives. Accordingly, the point does hold that science and technology do transform social life, and therefore they do define the options, among which peoples are free to choose.

The institutional base of intelligence is seen in these options as scientific technology. No society can be without a technology, and its technology inevitably defines and limits its options. Especially in *Freedom and Culture,* Dewey has made clear the principle that is involved. In essence, he insists as against Hume that reason is not the slave of the passions but that the passions are themselves transformed by reason. A person does not enter life with a repertoire of desires and instincts, only to have them run their course at the commands of nature. On the contrary, feeling is transformed by being expressed, and its expression is a function of the reorganization of things, which is the work of intelligence. The proper changes being made, the principle holds both for individuals and for social policy. Intelligence may be at work in both.

Science plays an exact—and exacting—role. We cannot deny its superiority in providing men with better means for acting and therefore we can understand the widespread and eager attempts to adopt it in modern cultures. But science is less a determinant than it is an opportunity. Its employment, however, exacts a price from modern man. It transforms life and therefore it creates tensions and clashes within societies. It cannot be ignored, but it can be misused, and generally is. The fault is not in its nature, but in the tardiness and inability of man to make the accommodations required to enjoy its opportunities. The fault, however, applies to the vulgarizations of science rather than to its intrinsic character. On the one hand, those who vulgarize science seldom comprehend scientific method, and the difficulties they encounter in attempting to apply science to practical affairs pertain less to science than to their corruption of it. On the other hand, scientists themselves easily make a mess of applying science to practical affairs, and their error resides not in their ignorance of scientific matters but rather in their ignorance of practical affairs. Therefore, they tend to be uncritical of so-called practical demands, which are permitted to dictate kinds of actions that should not be undertaken. The consequent corruptions and failure of accommodating science and practice to each other often give rise to a new romanticism that rejects both science and practice. Yet the romantic who blinds himself to the power that may be unleashed by scientific knowledge for bettering the human estate is more likely to give himself over to sentimentalism and cynicism than to the development of authentic sensibilities and wisdom.

No, the most trenchant criticism of science is that which sees how it undermines the cherished folklore of a culture but nevertheless requires a new mentality if it is to make its full contribution to social life. Greek science unquestionably under-

mined Greek mythology; Renaissance science, the Aristotelian-Thomistic synthesis; Darwinian science, the static or cyclical view of nature; and social science, the complacency of compartmentalized bourgeois industrialism together with its unstable and misfortunate efforts to separate fact and value, with all the ludicrous consequences that follow from such efforts.* Science is not some demonic expression of perverts or subverts; it is not an answer to all of man's deep-seated agonies and bedevilments; but it does provide an intelligent way of utilizing expertise in transforming many human problems into activities that are more rewarding and less given to hopeless or despairing frustrations and self-destruction. It can therefore aid men in a life of dignity as opposed to wantonness, but only if they are fully committed to it; otherwise, civil strife, war, violence, riots, and a host of other indignities of which we are at present excruciatingly conscious are more likely to continue to be the case.

The practical arts do embody a large measure of intelligence and, being practical, they necessarily employ and transform things and forces of nature to serve human purposes. These arts therefore can never lose contact with nature, and the knowledge that goes into them conduces to make them both useful and relevant to the world in which man lives and moves and has his being. In this sense they may, as we have already noted, be regarded as the original institutions of intelligence. Yet obviously they are much more, partly because they ordinarily incarnate an aesthetic simplicity and elegance that one can feel and prize for their own sake, partly because they breed feelings of wonder and transcendent powers that carry one far beyond the limits of utility. Thus although the practice of

* For a detailed and extended discussion of this theme, Cf. *Science, Folklore, and Philosophy,* Harry Girvetz, *et al.* (New York, Harper and Row, 1966).

these arts institutionalize intelligence, they also engender expressive qualities, which, when systematically exploited, occasion institutions of expression in the form of fine art or of religion. Fine art constitutes the purest form of expression, whereas religion may be regarded as a hybrid, with expression dominant and intelligence recessive. The practical arts thus give rise to the liberal arts, which cultivate sometimes the intellect, sometimes the feelings, and sometimes both. The liberal arts have a character of their own—so much so that men often consider them as proper ends to pursue apart from anything else. I wish now, however, not just to recognize what these ends are but also to spell out the functional relations between the liberal and the practical arts.

How the Liberal Arts Liberate

The liberal arts may serve to liberate the practical arts from overly narrow, and thus dehumanizing, concerns. Although they arise from the practical arts, they gain an adulthood and enjoy a quasi-independence from the utilitarian concerns from which they take their rise. Being critical of sheer utilities, they appeal to standards that transcend utilitarian matters in the name of a logic and an end of their own. In general, they can be said to aim at satisfying psychic needs beyond those of creature comforts and the anxious concerns for the urgencies of daily life. Although they have elements in common, they take three distinct forms: an aesthetic, a religious, and an intellectual. Each of these bears upon some aspect of the practical arts in that each from its own perspective may pass criticisms on them and thus may serve to illuminate virtues and shortcomings of the various practices. Each form of criticism is distinctive and expresses a temper of mind that colors a world outlook and that

places utilitarian life within a larger scheme of things. The aesthetic insists upon transforming means into something intrinsically enjoyable; the religious makes a determined effort to integrate the relation of means to end in a larger context of meaning; and the intellectual emphasizes the appreciation of the theoretical structures that suggest additional structures by which men may realize more inclusive purposes. Accordingly, the liberal arts make utilities less grubby and restricted and give freer play to human ingenuity and satisfaction.

Aesthetic Liberation

The aesthetic approach possesses a unique kind of sophistication. It cuts through so much of the tradition and folklore of a people insofar as it demands a freshness of life and at the same time a kind of distance from it. It finds freshness in the immediate joys of experience, and distance in that it locates joy in things themselves—"pleasure objectified as the quality of a thing," as Santayana characterized it. But this characterization also implies a serenity not as a loss of power but rather as a mastery over new facets of experience. The combination of power and beauty is better manifested, however, in the practical arts than in qualities in which one takes delight apart from them and for their own sake. When aesthetic criticism turns towards practices, it serves to insist upon conditions in which immediate joy is to be found in the workaday world. It then demands elegance as well as delight—in short, it demands that things be done in *style*. Efficiency, according to aesthetic criticism, is not enough; excellence also is required—both in the style of making and doing things and in the product, which is mute testimony of what the workman has done. In the fine arts, the separation from the practical becomes complete—or

we should say, almost complete—and the work of the artist is often said to be incomparable to that of the artisan. But whether the aesthetic demand is one that is directed immediately to the practical arts, such as in design of products, in architecture, and the like, or immediately to a way of life, only abstractly embodied in fine art, aesthetic fulfilment reflects prized criticisms of life in an amazing variety of forms.

The Aesthetic and the Practical

Before attacking the pressing problem of how to advance the integration of aesthetic consummation and the practical arts, there is an elementary issue that ought to be resolved once and for all—namely, the issue of whether aesthetic value is inherently contrary to the pursuit of practical ends. No doubt when means are regarded as holding no intrinsic interest for man but only as an obstacle to be avoided, there is a conflict between being absorbed in the immediacies of experience and ignoring them in order to get on to some further end. Such conflict is destructive, if not of immediate enjoyment, at least of the course of experience that has as its end the consummation of its consciously apprehended antecedents. Practical ends are a threat to aesthetic fulfilment because they easily become the major object of interest and suppress all but a perfunctory concern with the means by which they are achieved. This threat is especially real when the ends sought become mechanical through being repeated. Aesthetic fulfilment is easier to come by when a person has enough skill to cope with the technical difficulties of a practice and at the same time can subordinate technique to the challenge of creating something new. He will not have to trouble himself whether the finished work is important; it will be so if its origins lie in his inescap-

able concerns with nature and with the practical arts. In the absence of such origins, his work will no doubt be effete and not worth the bother.

The question of whether art and practical ends clash looks as if it need never have been raised. The artist and the artisan are kinfolk, and neither can ply his trade without tools and the makings of things. The problem, then, is why the problem should ever have been posed. By keeping in mind the tool-using function of man, we are, I think, in a better position to show how art can liberate, and to do this both from the point of view of the fine arts and from the point of view of the machine arts, each of which requires a somewhat different treatment.

Fine Art

The peculiarity of the fine arts in the contemporary world resides in the degree to which they have come to be dissociated from other affairs, especially practical and religious. They do enjoy a kind of life of their own, and therefore warrant being called "fine arts." Undeniably, they require an expertness in the handling of their media, and they have a history, involving specialized treatment of color and space, sound and time, words and composition, and a great deal more. The ability to handle the media and to experiment with them has proved to be endless in its variations and complications and in its resultant works of art. Form is traditionally a characteristic of all art. And even though some contemporary experimentalists have tried to avoid it, one important tendency is more towards making the arts purely formal and denying to them content to be derived from anything other than their intrinsic properties.

In fact, the movement of "non-objective art," or by whatever other names it goes, is so ingrained as to be generally acceptable by artists, and now even by laymen.

The issues pertaining to formal art have been so thoroughly treated by aestheticians that they need not be detailed here. A large and important school—if not the dominant trend in the fine arts—insists upon the separation of art from life and from nature. The degree to which so many artists have been able to make the separations is amazing. Paintings, poetry, music, sculpture, and the rest, are not supposed to derive their meaning from either life or nature, but to have meaning intrinsic to the art-work itself. Art, then, is said to have a special kind of meaning all its own. In some sense this must be correct, for it is generally conceded that art has its own language and is untranslatable. This much must be granted; otherwise there would be no art or else it would have no character which would distinguish it from other things. And this would be absurd. Our question consequently concerns what is meant by its special kind of meaning.

The potency of art is transmitted by the formal organization of its matter: brush strokes, the musical line, the chipped marble, etc.* No one, I suspect, quarrels with this statement, for in the absence of materials organized into a perceptible thing, there surely could be no work of fine art. The quarrel arises from the fact whether the formal organization *is* the meaning or whether it is a bearer of meaning which carries with it other qualities as well. A loopy bronze is certainly constituted as loops, but loops that, besides pleasing the eye,

* The literary arts do of course raise some nice questions. They do, however, involve "making" and "composing" and can, when the proper changes are made, conform to the generalized description of fine arts, having sensuous, if not tangible, components.

may contain tensions and a lilt that express the grace of a dancer who employs gravity to achieve levity. If the example is granted, the principle becomes clear that formal organization is not contrary to meaning that transcends it. In fact, the formal organization is required for the expression of transcendent meaning and could not be a precise meaning if the formal character of the object were otherwise. Art then achieves only the verisimilitude which resides between the form which expresses and the meaning which is expressed. Neither is possible without the other. This is different, say, from a drawn rectangle of three by five inches with a dot placed one inch from the top and two from the right. The rectangle is not a work of art, but it might be a diagram that signifies, say, where an object should be placed in a room with similar proportions. There would be a correspondence between the two, but no expression properly regarded as a work of fine art. Two comments may clarify the matter sufficiently for our purposes.

First, fine art is not established by the fact that something is pleasing to the eye. Pleasant proportions are aesthetic, but not sufficiently so to constitute a work of art. It is questionable whether those who would nicely place a large red dot on a dead white canvas are creating a work of art. Decorative it may be, and titillating to the senses; but art it probably is not, even if some would have it so. Secondly, even if it is uniquely expressed by a given form, meaning has a universality as well as a particularity in the sense that a loopy bronze has an essential connection with gravity and levity, with the dancer, and its sculptured whirls. All of these derive from antecedent experience and refer to new possibilities of experience without losing an iota of immediate satisfaction concentrated in perception of the bronze. It has its own inevitability, its own consummation. Moreover, it is full in that it contains various levels of

meaning, complementary rather than in conflict. Cezanne paints apples perceived in this way; Raphael, madonnas; Kandinsky, landscapes; Bacon, cadavers. Mondriaan and Victor Vasarely would be geometers of space, and otherwise eliminate (except possibly for color) anything else of interest. The former enhance their paintings by expressing, as Aristotle would say, the universal in the particular. The latter denude their paintings by draining off the particular into the universal. The former achieve their results by expressing the light of nature filtered into plastic form; the latter, paint by formula, touched by pleasure. Parallels can be found in the other arts: Bartok *vs.* Krenek; Joyce *vs.* Beckett, and the like.

I am not suggesting that art should not be experimental or that it should not depart from tradition or that it must eschew geometry. On the contrary, artists who do not engage in all manners of experimentalism, from gooey plastics to pop and op art, or still better, those who avoid the fads and make their own experiments, are the ones who, like Beethoven or Michaelangelo or Prokofief or Lipchitz in their day, are most likely to bring to consummation visions that add to the meaning of our own culture. The art which would seem to be not worth the bother is that which is precious and devoid of contact with the realities of the practical arts and of nature. Such art is nothing more than baubles, and is sure to be cast aside as soon as we engage in any of the serious issues of how man is to make himself at home in the world. Without such concerns, the cultural arts can serve no educational function nor can they contribute to our becoming better oriented to our world. The fine arts will of course continue as long as society continues, but they will not achieve their live potential unless artists respond to the condition of man by exploring it instead of avoiding it.

The Machine Arts

Contemporary man can explore another avenue of aesthetic consummation more directly related to his doings and makings than are the fine arts; that is, the exploration of the aesthetic potential contained in the practical arts themselves. If, as we have suggested, practice is not inherently contrary to aesthetic fulfilment, there is at least no a priori reason why such fulfilment cannot be sought more directly in practice. The artifacts of primitive societies suggest that this is so. The question is whether contemporary society depends upon activities that would prohibit similar outcomes.

Since the time of the rise of the factory system and its criticism by utopian and scientific socialists, the western world has become increasingly aware of the stupendous difficulties in achieving consummatory values. Marx's classic discussion of the fetish of the machine and of the alienation of man has left modern man uneasy in his attempts to find solutions for his predicament. Solutions which attempt to dignify labor or to have labor share in profits or to expropriate property or to make democracy industrial, along with innumerable other schemes for alleviating the predicament—such proposals have not proved to be more than palliatives. This is not the place to enter into a discussion of these topics, even though we dare not ignore the workingman in dealing with the idea of consummatory values in contemporary culture. Later, I wish to discuss one aspect of the matter—that is, how leisure as an institution of intelligence can promote consummatory values. At present, I wish to confine my remarks to the specific question of whether aesthetic values can be realized in the industrial arts. Two parts of the question can be answered in principle quite directly. There will still remain, however, a quandary, which is

the paradox of industrial society. The two answers pertain to the designing of machine goods and the product capable of being produced.

We have finally come to understand that machine goods need not be ugly. The older prejudice was that hand-made goods were superior to machine-made. In part the prejudice was a not unreasonable protest against shoddy goods, but in part it was a snobbish desire to prove one's class superiority. There is however a marked distinction between, say, pre-World War II goods and those since. A significant part of that difference resides in design.* The designer has come to occupy an increasingly important position in the production of goods that bear the stamp of aesthetic quality. The Russell Wrights, for example, are designers who are capable of revolutionizing the quality of goods of modern society and are artists who display quite as much genius as those who work in the fine arts. Theirs is a skill which respects the purpose that a thing is to serve and yet to go beyond utility in the creation of a thing of beauty. The first question we can answer then with some assurance is that aesthetic quality is capable of realization in the industrial arts because there is a growing number of artists —that is, industrial designers—who have the skill to transform practical things into things also of beauty.

To be sure designers are limited in what they can import into their designs for two reasons. First, "form follows function," and second, much of the tradition that could be imported would be monstrous. Where form is antagonistic to function, the object as a useful thing is incapacitated. Beauty then becomes an intrusion on the thing, and the conflict between the utilitarian and the aesthetic function works to the detri-

* Cf., for example, Lewis Mumford's classic discussion of "cheap and durable" goods in *Technics and Civilization* (New York: Harcourt, Brace & Co., 1934), pp. 100 ff.

ment of both, and therefore prevents the realization of consummatory value. Accordingly, design as ornament is not to be confused with design as following function. The latter is not a matter of resting satisfied with function. It is more in that, first it pleases the eye and other senses, and thus, secondly, it makes the object a better candidate for contemplation and for observing what other qualities it may possess. Not least of these other qualities is that of utility transvaluated by becoming the object of contemplation. Whatever other non-inhibiting qualities the designer can add are all to the good. But he is limited in possibilities, because of what has been said about attempting to import tradition into modern design. To introduce classical or Victorian motifs into machine products was a common way of prettifying them. The results proved to be aesthetic failures, even though they now may add to our joy in a museum of antiquities. Pumps decorated with rosettes, music boxes with classical columns, and such like, will not pass muster. The decorations are plastered on; they are anti-aesthetic; they need to be superseded by other designs that are appropriate to the newer culture in which man finds himself and must make his way.

Designers there are who are competent to achieve designs worthy of modern culture. The second part of the answer, then, is to be found in the fact that the objects themselves are in fact being made. Utensils and cookware, packaged goods and plastics, furniture and clothes, public buildings and private housing—these are surely some of the likely candidates for commodities that are well designed and that give man a sense of achievement and pride in his works. I am not suggesting that there are not badly designed goods in each of the above categories, for there certainly are numerous monstrosities in every one. Yet the fact is that there is abundant quality in every one: Finnish stainless steelware; ceramic-metal cookware;

packaging in translucent materials, Danish furniture, Royal Festival Music Halls, the Santa Barbara Campus—these examples taken at random satisfy both functional and rigorous design requirements. Industrial society is capable of producing goods of which it need not be ashamed. The functional and the aesthetic need not be in conflict.

On the other side, probably the worst examples can be found in automobile design and in tract housing. First of all, the institution of the automobile is fraught with evils: smog, traffic, accidents, built-in obsolescence, economic wastes, scalping financing, and deterrents to exercise and self-propulsion. In our commitment to the automobile we are committed to a thoroughly insane institution. The body designs of most autos are dishonest. Repairs are costly, safety factors are ignored, lights and shiny chrome are lavishly displayed, size is disproportionate to function, and gadgetry runs riot—these are some of the charges which have been substantiated in instances numerous enough to question the intelligence of our commitment. Its genuine consummations are so completely confounded with the spurious as to constitute one of the most difficult problems of policy in an industrial society.

Another example of disingenuous policy is the tract house. No doubt in many ways it serves its purpose well—especially when compared with the tenement house. It is an individual unit; it has some ground and light; and it may be sufficiently roomy and well planned to permit domestic felicity. Beyond these considerable limits, it is probably a blight on modern culture—in the monotony and lack of imagination in the planning, and even more, in the total unconcern of domestic life as connected with industry and the livelihood and the transportation of persons to and from the tract. Domestic life, especially for workingmen and the middle class, is another one of those policy matters in which industrial society is just

beginning to make some headway. But it has a long way to go before its potential in consummatory values is to be realized.

Finally, there is the really staggering quandary of industrial society. Modern man has discovered through science and technology means for producing endless goods of utility and of quality. There is every reason to believe that if society lasts, he can continue to produce goods of even better quality and design and that he can establish more rational ends, involving less of waste and destruction and more of satisfaction in the life-processes. The consummatory process can go on at a pace, except for one factor of the productive process necessary to it—work. The quandary resides in the fact that so much of the work in industrial society is contrary to the life-processes. It is routine, monotonous, mechanical, fatiguing, and depressing. Its rewards are external, remote, disproportionate to need, and in general a cause of conflict and frustration.* Evidence points to the fact that the only mentality geared to the rigors of the assembly line is the moronic.† Of the various proposals that have been made for the correction of the evils—shorter hours, more pay, better facilities, fringe benefits, big-brotherly care, psychoanalysis, music, etc.—all are palliatives. Only one proposal, the really radical one, goes beyond this, and that is to get the worker out of the factory. Automation can help; so can the rationalization of ends; and possibly a faith in salvation in another world. Yet the fact seems to be that in the foreseeable future a significant proportion of men will be condemned to spend, say, upwards of six hours a day for some twenty-five or thirty years on debilitating work. Increased leisure can in part remedy their lot, but it cannot make wholly consumma-

* For an intelligent and empirically documented analysis of these charges, see Chris Argyris, *Personality and Organization, the Conflict between System and the Individual* (New York: Harper, 1957).

† Ibid, p. 68.

tory a life in which so much is given over to the diminution of vital processes. Condemnation to the monotony of factory work remains as a stigma on a culture otherwise capable of authentic consummations.

Religion

There is a difficulty about consummatory values as aesthetic: they are framed so as to set them off from the rest of the world. Their gain in intensity is matched by their loss in extensity. Man certainly needs the enclosure, if only the better to face the world in its extensity. The aesthetic serves well as a summing up, as a gaining of composure, and as a being in touch with the immediate vibrancy of things. But there is another part of life less well served by the aesthetic: the itch to break the bonds and to search for the new, the horizon beyond. This kind of venture is essential to the religious dimension—a search for a wholeness or meaningfulness of life not bounded by a frame. In this search man is the mediator between things of sense and immediacy and things of spirit and transcendence. He is the clue to the interpretation in that he is enmeshed in both the particularities of existence and the universalities of transcendence, and must come to terms with both. The particularities are trivial, binding, and suffocating unless he can discern their universalities, and the universalities are functionless symbols unless he can understand their expressions as involving existence. The former is sense-binding; the latter is ontologically expressive of whatever ultimate meaning there is to be found in wholeness and completeness. The critical aspect of religion may be expressed in literary-testamentary form, in theological-exemplary, or in mystical intuition; but they are all interrelated facets of the religious enterprise.

Part of the religious spirit may be so overwhelming as to block consummation; another, yet related, part may require servility to a degree that also blocks it. Kierkegaard found the essence of religion in the confrontation of finite man by the infinite spirit, a relation he frankly admitted was beyond human understanding. It led him to anguish, to fear and trembling, and to renunciation to an extent that he mostly belittled the works of man, and sought a release from convention, human powers, the arrogance of the human spirit, and the effrontery of human assertion. He was a man in the world but not of it. Another facet of the incomprehensibility of the transcendent God is to require of man "to do justly, and to love mercy, and to walk humbly with thy God." This has less verve to it; it induces an attitude of acceptance; and it reduces the venturesomeness of man to a mild good will and humility, made "sweet" by the reflected glory of God. It is the "Hebraising" of life at the expense of "Hellenising" it, if once more we may employ Arnold's suggestive terms.

The religious ideal of consummation that liberates culture is one that relates the arts of personal involvement to those of utility and exploration of nature. It is a way of coming to terms with the personal and unique idiom of selfhood in a world which is otherwise without style or fulfilment. But care is required so that we do not confuse the idiom with a subjectivity that blights the community of men. The religious spirit would seem to require reconciliation of the many sidedness of man's activities—his aloneness, his togetherness, his utilities, and his expanding knowledge. To omit any of these is to invite a partiality and divisiveness that cannot but cripple the spirit. The task is enormous, but no less than the enormity of living a life of consummation, especially in view of the manifest inadequacies of the consummations separately derived from specialization of interests. Perhaps the words of Micah should be

reconsidered to the end of advancing a more enlightened meaning of the expression "to walk humbly with thy God." The phrase may signify the willingness to acknowledge the various facets of life and not to move recklessly and without a sense of the precariousness of the present. It may also connote the majesty of the world in comparison with the pettiness of the individual, who is cut off from the mainland. The serious question for religion is whether it is possible to effect a union of the variety of life-activities that so insistently refuse to be neglected. I shall try to pose the major issues rather than to attempt answers.

Mysticism and Agony

There is a kind of religion—or mysticism—that seeks for the effacement of the individual. It seeks for a union of self with godhead in which there is complete absorption of the one into the other. And in the East is the interesting variant, at least as popularly misinterpreted in the West, of the absorption of the self into nothingness—Nirvana. The mystic may possess the truth; but if he does, there appears to be a serious flaw in his attitude. Does not his withdrawal from the world make "the truth" irrelevant? Does he not refuse to cope with life, and to belittle it? Does he not make everything, if not illusion, at least trivial? Is not his wisdom escapist, a refusal to engage seriously in anything but a preparation for his ultimate consummation? There is a question whether any meaning can be attached to the notion of "ultimate consummation." From one point of view the notion is surely meaningless, that is, the point of view of life-processes as life-giving and fulfilling activities. From this point of view the notion is at best an extrapolation from experience such that it constitutes a denial both of all future

experience and of the personal idiom. He who opts for this may indeed suffer agonies but he can realize no consummation save as he becomes transfigured into another kind of being—a non-natural one.

A mature religion, even as a mature person, must acknowledge and interpret agony. Religion has thrived on it; philistines have ignored it; a few utilitarians, especially Bentham and Mill, have counted it in; and existentialists have tried to make a philosophy of it. The latter have at least made us acutely aware of the vapidness of a philosophy which would ignore it as an inescapable condition of human life. The aloneness of the individual, the awesome responsibilities he must shoulder, are surely a part of the religious transaction. Man was seen in his nakedness in the Garden, and unless he sees himself in his own nakedness when he is confronted with crucial decisions, he surely must be regarded as something less than a man. The appeal is to a depth of human existence, the removal of layer after layer of custom serving as an armor to hide himself from himself. It is, however, not quite clear what is to be found as the outer layers are removed. Traditional religion would have it as the soul, sometimes shaky, as in the story of Job, but other times solid, as in the story of Moses. Because they are less cluttered with dogma, religious expressions in literary-testamental forms can better catch the religious drama with its full depth of human character and conflicts of personal aspirations. Where there is character, this method can reveal the personal idiom through which it is manifested.

Greatness, whether as a capacity for suffering or for steadfastness or for wisdom or in any other of its illimitable forms, makes for religious drama. A protagonist with strength, such as when David attacked Goliath, is required if a searching revelation of the powers of man, together with their limitations, for enlarging life is to be had. Greek tragic drama achieves this

masterfully; it may therefore be regarded as religious drama, culminating as it usually does in agony touched by wisdom. In contrast, much of modern drama and literature is aborted, mostly because its characters are insipid or senile or puerile, its situations contrived, and its outcomes absurd. Whitehead appreciates the necessity for depth of meaning in the religious search when he defines it as what man does with his solitariness. And wisely he adds that the expression demands that man return to society. Religious expression cannot do without aloneness, but paradoxically it also cannot do without togetherness. There is a strong presumption that there is something wrong with a religion—or a philosophy—that makes one answerable only to oneself.

Man and Man

The Hebraic-Christian tradition would have it different. It insists that you should "love the Lord thy God with all thine heart, and with all thy soul, and with all thy might." This sounds like a total commitment, however unclear the object of it may be. Less unclear is it when it commands, "Love thy neighbor." Whether "love" means the same in both these and various other contexts is for the scholar to say. I would note, however, that the last is not just self-effacement, since Matthew says one is to love one's neighbor *as thyself*. A religion does not fare well without the sense of the communal. "Togetherness" may have ugly connotations today, but the gospel proclaims that where two or three of you are gathered in my name, I am there among you. The sense of solidarity is indispensable to a religion that has a tradition and that is meant to appeal to members in a church. Love is a bond that unites men, just as hate is a contrary force that separates. The latter

plays its role only as a counterpart to the former. Hatred is usually reserved for an out-group, but there can be an out-group only as there is an in-group.

In reaching for completeness, the religious spirit requires a sense of unity among men as well as a sense of unity between man and nature. How these are to be expressed are matters of ingenuity of cult and ceremony in fashioning spirit to things of society and things of the senses. In his lectures on Christianity, Josiah Royce suggests a way of engendering society as a community of hope. His suggestion provides a way of mediating between a society that does not exist and the actualization of forces to bring about a society that might exist. The religious spirit is then capable of being progressively realized (or defeated) as the society itself is realized (or defeated). Wholeness in turn becomes an ideal instead of a dogma, and it places the burden for its realization on human ingenuity and attitudes. Moreover, the test of progress consists then not in ecumenical councils, but in the creation of institutions that unite instead of dividing men. Brotherhood is less dependent on the idea of the Fatherhood of God than on the works of men in seeking their common aspirations in erecting institutions of intelligence appropriate to their demands, the results of which may properly be celebrated in institutions of intelligence.

Man and Nature

Modern man may find it even more difficult to establish wholeness as a continuity between himself and nature than between himself and other men. Primitive religions had fewer obstacles to the invention of sprites and spirits in nature akin to the human spirit. Animism and animalism were unham-

pered by a scientific attitude that sought to interpret the inanimate and even the animate in rigorously mechanical terms. Modern man cannot seriously entertain animistic and animalistic notions, nor can he quite people the world with its fantasies. His ideas of utility have reached into nature, and he has found that he can better exploit it by experimenting with it and manipulating it than by propitiating or appeasing its forces through prayer and ceremonial rites. His exploitation of it has long been a public scandal: air, water, and land have become unfit for human use. Nature worship has consequently been mostly a fad, practiced by nudists or vegetarians or lovers of wild life. Utility and continuity between man and nature have enjoyed only tenuous connections. The antitheses come easily to our lips. Man has dignity; nature has uses. Man has an inner soul; nature has forces. Man is subject; nature is object. And so on, with a host of other oppositions that could be spelled out. Bourgeois democracy and "carboniferous capitalism" helped to make wide the gap between man and nature—and mostly to the detriment of religion. First it was nature that was regarded as alien; then it was society; and finally the full consequence dawned, man was alien. Such alienation is productive of nihilism rather than religion. It trivialized the practical arts, and it trivialized man. The question is whether religion can serve as a liberal art in aiding man and nature through the practical arts to become complementary instead of antagonistic.

No doubt I have overdrawn the degree of separation of man and nature. It has, however, been real, and probably more so intellectually than practically. But even intellectually it was never quite complete. Descartes, for example, who drew rigid lines between extended and thinking things wrestled in the last book of his *Meditations* to provide a "real union" between body and soul. And in another vein, the Deist, John Locke,

sought a reconciliation between man and nature by mixing his labor with bounties of nature. And the economists from Adam Smith to Karl Marx and Henry George had a sense of a union of man and nature that should not be intruded on by the misuses of wealth—such as was displayed by the anomaly of creating poverty through progress.

There has been since the thirties one important institutionalization of a rapprochement between the practical arts and a genuine respect for the continuities between man and nature. This has been the development of the Tennessee Valley. Land has been reclaimed, crops rationalized, mountains reforested, river courses controlled, mined strips filled, humus and phosphates put back into the soil, and in general the land made more habitable. Moreover, all this has been accompanied by an advancement of the arts, practical and liberal. Electrification of the countryside, transportation of goods, especially by water; development of agriculture, manufacturing, and trade; building of communities with more adequate hospitals, schools, libraries, and other public facilities; provisions for recreation and felicitous social arrangements. These are some of the most important categories of developments. And behind it all is what one of the inspiriting founders, David Lilienthal, wrote of at length as "The Seamless Web of Nature." * The violation of the unity of nature only brings home "nature's remorseless arithmetic." Despite its shortcomings, TVA stands as a monumental development of an institution of intelligence for enlightening practice by religious fervor directed to the liberation of the practical arts. This institution stands in marked contrast to faddistic worships. It was built on a notion of what dams, hydroturbines, electric power, fertilizers, and appropriate machinery can do when there is respect for nature and for the

* Cf. his *TVA: Democracy on the March* (New York: Harper & Sons, 1953), chap. vii.

advancement of the lives of men. Behind these ends stood science as an intelligent and liberative force. To employ science in this way, mindful of the seamless web, the authors of the program saw that it involved, not arbitrary works here and there, but rather the development of the resources of the River Valley in its entirety. And this, I assume, is rightly conceived of as a religious impulse which in man's successful search for meaning enlarges his world.

There are also more recent stirrings of religion regarded as a liberal art for bringing about rapprochements between man and nature. Both in the exploration of outer space and of the deep seas, there are possibilities of fusing the practical and the liberal, especially if the methods are designed to prevent violations of nature while advancing human life. These topics are much too complicated to enter into here. I would only suggest that although they do possess a potential for amalgamating the practical and the liberal arts, nevertheless caution is in order so that these avenues are not created at the expense of others that may well hold out greater promise for human fulfilment.

The Role of the Intellect

Underlying the liberation of the practical arts, the intellectual phase occupies the position of prominence. Many would deny to the intellect this position for a variety of reasons, practical, religious, aesthetic, or just the common garden variety of anti-intellectualism. Their denials, however, are incompetent in the sense that they are repudiations of modern culture and would wreck havoc with society. Aestheticism, philistinism, asceticism, and obscurantism do exist among the confusions about society today, but they are not substitutes for a viable existence. As denials of the progress of science and

technology, none of them is a match for meeting the demands of continued existence, let alone of culture. Only as they serve to liberalize the practical arts can any of them gain standing. I have already discussed how the aesthetic and the religious can serve this end; philistinism and anti-intellectualism are thoroughly unacceptable because their claims to the good life are clearly such as only to incapacitate it. The philistine so narrows the conception of the practical as to deny the joys beyond that of "the bellymad." The anti-intellectualist, usually in the name of some tired morality, is just confused and ignorant—and is usually egged on by the press for reasons of its own.

The intellectual impulse finds its proximate fulfilment in conceptual systems. Concepts are, of course, inescapable aspects of all the practical arts. Nevertheless the difference between their employment in the traditional practical arts and in "pure theory" is of a magnitude so great as to constitute virtually a difference in kind. In the simplest versions of the former, concepts are like names—pointers whose referents are easily discernible in commonly shared experience, such as sticks and stones and identifiable artifacts. The names of the skills by which the artifacts are made may represent ideas less easily gained, and may even be mysteries to all but those who have themselves become initiated into special skills, skills such as spinning, weaving, trapping, and what-not. But the obscurity of such terms, expressed in words, is positively elementary in comparison with even the common abstractions in mathematics and the sciences, as, for example, when compared with "number," "energy," "atom," "motion," "tissue," etc. Although concepts such as these are in a sense simple, they nevertheless defy clear-cut definition and need to be constantly redefined as science progresses. The "penumbra of obscurity" remains even at the stages of the greatest advancement of science, and often

the obscurity may even increase at the higher levels of understanding.

Besides a high degree of conceptual abstraction, advanced intellectual activity is characterized by the systematic way in which concepts are related to one another. Manipulation of symbols according to rule is indispensable to intellectual activity. Even when the rules themselves are comparatively few, the manipulations may involve long and involved processes, requiring considerable expertise. Science does mean that things are studied in a systematic way, and despite the contrary elements that are always cropping up in it, there is nothing properly called science unless it contains a wide degree of generality as well as a recognized way of moving about from one part of the discipline to another. As many writers on the subject have quite correctly insisted, science does not consist in the accumulation of facts. Unless the facts can be placed in a broader scheme of things, they are not scientifically cured.

Both aspects of science, the conceptual and the systematic, provide clues to the way in which science serves to criticize the practical arts. The obvious virtue of the practical arts is that they contain knowledge for doing and making things; yet the precision of practical knowledge is severely limited. On the conceptual level, for instance, men from time immemorial have certainly known what "heft" is; and certainly it figured in nearly everything they did, but it was not until after the rise of modern science that they came to have a precise notion of "mass," together with the ultrarefined notion of mass being concentrated at a point in the center of a body. The refining of concepts does go on at a pace in the practical pursuits, but the pace is immeasurably accelerated when men who are not burdened with immediate practicalities take thought about the world and devise experiments which lay bare more considered

principles than those formulated under the pressing demands for quick results.

Behind the practical arts, then, lies science. There is no need to discuss this further. Nor is there need to discuss further the intrinsic values of science except to observe that the practice of science has its own morality, its own ecstasies, and enlightenment. But it can no more stand independently as a culture than can art or religion. Science has served to liberate the practical arts. About this there is no longer any doubt. But there is a further question as to what can liberate science? This may sound like a strange question. Yet once we dissolve its ambiguities, I think we find it not so. Part of the question is, What are the reverse liberations of art, religion, and practice upon science? The other part is, How can the intellect liberate science from itself? The first question we can now deal with summarily. The second, which is metascientific, or I should prefer, philosophical, deserves more extended discussion.

Art and religion as institutions of expression liberate science insofar as they explore feelings that are consonant with it. Together, art, religion, and science then constitute a greater harmony of institutions. Such is their power of liberation. The practical arts, on the other hand, liberate science as an extension of experimentation and manipulation already inherent in science. In the context of education, Pestalozzi gave it classical expression when he wrote in *How Gertrude Teaches Her Children*:

> Man! needing much and desiring all, thou must to satisfy thy wants and wishes, *know* and *think*, but for this thou must also [*can* and] *do*. And knowing and doing are so closely connected that if one ceases the other ceases with it. But there can be this harmony between thy life and thy inmost nature only if the *powers of doing* (with-

> out which it is impossible to satisfy thy wishes and wants) are cultivated in thee with just the same art, and raised to the same degree of perfection, as thy insight into the objects of thy wants and wishes. The cultivation of these activities rests then on the same organic laws as the cultivation of knowledge.*

Thinking can and should be enjoyed for its own sake. But aside from the aesthetic delight in doing so, the chief reason is that it gets inhibited if it is not sufficiently released from immediate ends. Since, however, the intellect is a mode of intelligence, it needs to be referred back to practice if it is to enjoy its full liberative capacities.

Philosophy and the Intellect

Although intellectual activity is associated in modern culture primarily with science and technology, including the practical arts derived from them, it is not exclusively limited to these distinctive areas of the contemporary world. Intellect is also a function of philosophical expression, where philosophy has the task of analyzing the clash of cultural elements in society to the end of effecting a reconciliation of them. The philosophical task has various modes, but they can be viewed according as they emphasize analysis, synthesis, or prophecy. Some would have it that philosophy can rely exclusively on one of these modes, but to do so is to make clarity, coherence, or guidance a ruling principle at the expense of the others. Each of them is not just laudable, but is required if philosophy is to make its full contribution to human understanding.

* Trans. Lucy E. Holland and Frances C. Turner (Syracuse, New York: C. W. Bardeen, 1898), pp. 270–71.

Analysis

At least in Western philosophy, analysis has been an indispensable mode from the beginnings. This mode is clearly revealed in an examination of the remains of that early Greek philosophy where there exist more than very incomplete excerpts. Surely by the time of the Eleatics, the evidence is clear. Parmenides' presentation of the arguments for the reality of the one and for the unreality of the many and Zeno's still bothersome paradoxes of motion are a clear indication that the philosophical mode requires more than common-sense analysis. The mode of analysis in Greek philosophy seems not to be lost sight of throughout its whole tradition. It is true that there is no clear agreement on what the units of analysis should be. Sometimes it is bodies, sometimes motions, or again it may be sensations or concepts or forms, variously construed in various contexts. But in the absence of some kind of unit, even if entertained only for the purpose of criticism, philosophical discourse is doomed.

Renaissance philosophy thoroughly explored analysis of bodies in motion and came up with a variety of interpretations of mechanism. Following its lead, but with roots in medieval nominalism, empirical philosophy did the same for sensations and ended with structural psychology and positivism. After an interlude of idealism, which was critical of all forms of atomism, Western philosophy turned toward various forms of realism, some emphasizing process and some reverting to the older atomism made wiser by mathematics and the new science. But the most effective forms of analysis have been provided by the linguistic philosophers, who, along with logical positivists, have done most to discredit traditional metaphysics. The burning philosophical question today involves discovering

whether this form of analysis has anything additional to offer.

Linguistic philosophy, we observed earlier, is not without deep roots in tradition, especially in that of Aristotle and the British empiricists. Among contemporary philosophers, it owes much to G. E. Moore, who, though opposed to its linguistic bias, did lay a ground work for this bias by insisting that philosophy not depart from common-sense experience, or from the plain views of the plain man. Those who, under the stimulus of Wittgenstein, carried the method foreward into linguistic analysis believed that philosophy was very largely a mistaken venture. Moreover, they regarded its new mission to be the dissolution of false problems engendered by the misuse of language. In one important version of this mode, words are regarded as having meaning by virtue of their use in sentences. Philosophical problems will not arise if we confine language to such appropriate uses. Mysteries "whereof one cannot speak" do of course arise, but they are not philosophical because one cannot speak of them. The mystic may, and often does, ignore analysis, but the philosopher cannot. Without it he has no trade. The question is, what kind of analysis and to what end?

There is reason to believe that the new analysis has succeeded in discrediting old puzzles and has made progress on such topics as "referring," "mind," "dreaming," "believing," "knowing," "evidence," "reasons," "voluntary," and many others. And surely this has relevance to a culture disillusioned with metaphysical prepossessions remote from the realities of a secular civilization. Just as it has been said that Aristotle's main concern was to understand Greece, so we may say that the analysts want to understand the understandable things of today's common sense. And that this understanding is best got at, though not exclusively, by the method of linguistic analysis.

The bias then is not one of changing the world but of understanding it—as things, as properties, as intentions, as

acts, etc. And this analysis is to be done with all the sophistication possible. Part of the sophistication is to avoid simple conclusions and to respect the complexities of knowing, believing, acting, and the like. Another part of it is to avoid systems, because they oversimplify and distort and mislead. Therefore a new method is required. It is the method of "doing philosophy." To do philosophy is to analyze locutions, to discover the varieties of their plain meanings, to distinguish them from the "odd" sayings in which philosophers especially are prone to indulge, and only then very cautiously to arrive, where possible, at generalizations. The chief expertise of philosophers is the analysis of meanings contained in locutions. Philosophers can be in a position to know common sense things as well as anybody else, but they do not *qua* philosophers have the competence of the scientist doing science, the politician doing politics, the reformer making reforms, etc. Hence, the philosopher's interest in these subjects is limited mostly to the ways in which various kinds of activities differ from one another and can be spoken of meaningfully. It is true there is little orthodoxy in the "school," and that various linguistic or analytic philosophers do philosophy in different ways—so much so that some of them who come out of this tradition are willing to do metaphysics of a sort. But on the whole, their philosophical predispositions make for a very loose world, with a maximum of tolerance and a minimum of system.

Synthesis

Another deeply embedded motive that has been a part of Western philosophy from the beginning is represented by the maxim of Bacon "I have taken all knowledge to be my province." When Thales said all is water, and Parmenides reality is

one, and when Plato said that the Good is the ultimate explanatory principle of all things, they were all searching for a unifying principle to make more understandable nature and man and society and whatever else there might be. Behind this kind of explanation is the refusal to accept atomism in any of its forms—mechanistic, sensationalistic, individualistic, linguistic—and to insist upon the contextual relations of all things, the seamless web. It makes for a philosophy with less clarity, but it gains another dimension by searching for, and often finding, connections that otherwise would be lost sight of. If only it can propose a strategy, it often succeeds remarkably well. Hegel and Marx proposed it as the dialectical method; Dewey as the experimental method. There is much to be said in favor of both methods, especially when interest is focused upon the productive forces in society.

Both Marx and Dewey sought to rid philosophy of the arbitrary divisions of social life. Marx thought he could discern a unifying principle underlying class warfare in all of its manifestations, economic, political, legal, religious, artistic, family-relations, and what-not. The "relations of production" are the clue to understanding both exploitation and its demise. There is a fabric of society and the patterns are repeated within it in multifarious expression. Although the economic, modified by forces of nature as well as the means of production, is the primary manifestation, there are others too, which complete the many-faceted definition of a society. The Marxian position has of course been redefined in a variety of ways, among which is the institutionalization of it, especially in Russia and China.

Dewey's account of contextualism has an American twist, but it has roots in German idealism and even more in Darwinian naturalism. Dewey sought for integral connections among man and nature, and he found them primarily in the rhythms of nature, expressed in "natural law" in man, in

ceremonials and rites, in art and society, and in science and philosophy.* His strategy, as we have said, is founded in the experimental method. This method, though characteristic of science, is nevertheless broader than science. It respects the empirically discovered connections among things wherever they are found—in nature, art, society, education, morals, religion, industry, the corporation, law, politics, and in any other relations into which men or things enter. The strategy behind the empirical method is man-centered, for it is engaged only in the face of problems or difficulties or ambiguities or challenges or adventures. In the presence of such confrontations, men engage themselves for solving problems or achieving ends or effecting consummations or for making determinate the indeterminate. Dewey thus attempted to avoid the necessity of pronouncing arbitrary judgments about the world; rather, he proposed that judgments be expressions for making situations definite. The kind of definiteness would depend upon the context—warranted assertibility for knowledge, growth for education, satisfactoriness for morals, consummation for art, etc. But in any event, instead of defining the context a priori, he insisted upon allowing it to be disclosed in the course of inquiry, that is, by effecting the appropriate relations in experience. In particular, Dewey constantly inveighed against the complacent acceptance of various dualisms—mind and body, theory and practice, school and society, individual and state, nature and God, and any other that arbitrarily set apart one thing from another such that no inquiry into their relations would be possible.

Marx and Dewey stopped short of asserting the existence of a single context for all reality, such as is asserted in various proposals by idealists and mechanists and neo-Thomists and

* For a brief and lively discussion of this, cf. *Art as Experience*, pp. 147 ff.

even by some emergent evolutionists. The high traditions from the Eleatics to St. Thomas and Spinoza and Hegel and Bergson and Whitehead has favored monism over pluralism. But it has never been able to sustain the thesis of a single, ultimate context without yielding the empirical approach and ending in a form of mysticism. Because of this anomaly, radical pluralists could employ the analytic method effectively to counter the thesis of a single context. The thesis committed its protagonist to assume the air of omniscience, which practically was expressed in arbitrary, if not suffocating, forms of religious fanaticism or political nationalism, or even racist elitism. In the face of a shaken faith in idealism, the synthetic method was easy prey for those who advocated the analytic method, together with the atomism it implies. Yet when extreme contextualism gave way in its blind faith in dialectic to a commitment to the empirical method of searching for connections among things, it could not be casually overthrown by analysts. When this kind of toughness is inherent in contextualism, analysts have increasingly come to acknowledge it.* Analysis which is in keeping with the structure of knowledge cannot afford to lose sight of synthesis regarded as a search for the interconnections of things. The new science, as well as the practical arts, has capably demonstrated the existence of such interconnections. When philosophy is out of tune with such demonstrations, it loses its relevance and becomes academic.

Philosophy as Orientation

Both the analytic and the synthetic methods in philosophy are futile if they are out of touch with the moving forces of

* Hence, the newer phase of "analytic philosophy" which has come to acknowledge the need for "metaphysics," following the clue by P. F. Strawson in his *Individuals* (London: Methuen and Co., 1959).

society and their potentials. Hence, the uselessness of philosophic method which does not at the same time provide man with a sense of orientation to his world. Again, Western philosophy has demonstrated a prophetic quality from its beginnings: Thales and Pythagoras anticipating science and cosmology; Protagoras, high humanism; Plato, the need for social reconstruction. The founders of modern philosophy did the same for their world: Bacon and Descartes, Locke and Leibniz. In the nineteenth century there were Hegel, Schopenhauer, and Spencer; and in the twentieth, the philosophers of process, of science, and of society.

Prophecy is abhorrent unless it has vision supported by method; it is sheerly evangelical unless it is informed and informative and capable of being cultivated in a public and responsible way. The strictures are thus severe, and the savant or the sage or the "Hoosier Philosopher" does not qualify. The Pre-Socratics did qualify with their trust in reason; Plato did with his dialectic; Bacon with this theory of induction; Descartes with the mathematical method; and in a similar way certain contemporary philosophers have made their impact: Marx and Dewey, Bergson and Whitehead, Russell and Moore, Carnap and Wittgenstein. There is a sense then in which philosophy is not quite capable unless it develops a "school." But there are again heavy strictures to be placed also upon the school, and therefore not just any old kind of school will do. The members must be able to employ the method of the founder, and they must be able to do so with both precision and imagination. The disciples will seldom be a match for the founder but they can have understanding and they can explore new areas, and some of their number will certainly have to be distinguished.

Vision is a faculty with many forms. Those forms that catch on in philosophy have to penetrate distinctive aspects of a

culture as well as to suggest new directions by which clashes between the old and new can be reconciled. To accomplish this end, a philosophy requires the elaboration of its method for exploring the range of human interests and for making them germane to one another. The Pythagoreans did this in employing number to reveal the essence of geometrical forms, harmonic relations of vibrating strings, motions of the heavenly bodies, and moral qualities. The method served well, and even better when Plato seized upon it and gave it a more universal significance than the Pythagoreans were able to do. In a vastly different intellectual climate, Descartes performed equivalent feats by using the mathematical method to explore nature and the intellectual method to explore mind. Although he found close analogies between the two, he could never quite overcome the dualism involved. Yet this dualism also served well in making the world safe for science while at the same time it declared the glory of God. To be sure Descartes' works were placed on the Index, but even that could not detract from the power of his vision for interpreting the modern world. In the post-Darwinian world, process-philosophies looked to the biological sciences for their paradigm, and succeeded remarkably well in orienting man to a world of dynamic realities and creativity. Whitehead wrestled with philosophical problems in order to bring together both the biological and the mathematical into a single system. Dewey, adopting history as his paradigm, sought to reconcile the great community with the new science. Still others have looked to the subconscious and inner being of man, or alternatively, to language and ineffability as the prophetic qualities most likely to provide orientation for man in his present predicament.

However indispensable the method of prophecy may be to philosophy, its weaknesses are apparent, and possibly insurmountable. Is there any basis for judging one philosophy to be

any more acceptable than another? Is philosophy at bottom a matter of temperament? Does the skill applied to implementing a vision really add to its validity? Is there any reliable way of distinguishing a fad from an authentic philosophy? These are some of the innumerable questions that haunt our steps in any attempt to seek out a philosophy at once grounded in the nature of things and appropriate to the times. From the historical point of view, this double standard may be more readily judged. Although we may be deceived by our historical pronouncements, we can better observe, after the fact, how philosophies mesh with historical circumstance and shed light upon them. And even with respect to the standard of making philosophy appropriate to reality, we can, again from the historical point of view, observe the way in which it does take its clue from the science or other focal activities of the time and point directions for resolving the clashes between it and other indispensable activities. A philosophy which does not enlighten its society, one which does not hold the mirror up to man so that he can see himself in relation to nature and human undertakings in the depth of their commitments and to the kinds of consummations open to himself and to his fellow men—such a philosophy is a trifling thing.

My proposal is that there therefore exists a test, even if difficult to make and not always accurate, by which a philosophy can justify itself. The supreme test is the degree to which a philosophy is reasonably clear in its basic concepts, systematic enough to cover the major commitments of a society and to provide criticisms of their incoherencies, and capable of producing a critical philosophical tradition to carry on continuously these tasks. More simply, the test of an adequate philosophy is its capacity to become established as the most general critical institution of intelligence in a society. Classical Greece did this very well; Rome did not and neither did the so-called

Dark Ages. From the eleventh to the fourteenth centuries Europe did it well, and so did the Renaissance even up to the Enlightenment. The later nineteenth century and early twentieth century often did it effectively. The last twenty years have been very active with very spotty results. Often, during these years, philosophy has abdicated, sometimes to a technical facility, sometimes to a romanticism (two sides of the same coin) that has inhibited its principal task. My final suggestion is that by looking to philosophy as the inclusive institution of intelligence we can recover its high tradition and allow it to perform its sustained and critical function. In the twentieth century, that institution will be seen to have its foundation in the leisure that is provided by the affluent society.

V. The New Leisure

Aristotle was right in suggesting that there could be no good life without leisure. He was also right in identifying leisure in Greece with the classes who minimized work and who engaged in it only begrudgingly. Yet, anyone would be wrong who attempted to employ in our society the limited standards that Aristotle employed in his. Today no man is "by nature" a slave, except some morons—and they are more likely to be drains on the affluent society than producers in it. In the truly affluent society of today, there is instead of a leisured class, a leisured society—at least, such a society is a reasonable goal. The question is, what kind of leisure is most rewarding and what are the major requirements for it to have its play in a genuine culture? In order to answer these questions I wish to consider (a) major social conditions which give shape to the unique character of leisure in contemporary industrial society, (b) the irresponsible use of leisure time and some institutional potentials for the transformation of leisure into consummatory values, and (c) the peaceful, philosophical climate in which the new leisure can flourish.

Mass Leisure

Modern industry not only produces goods at an increasing rate (some 6 per cent increase per year) but it also forecasts a constantly increased amount of free time for its people.* No doubt these two factors supply adequate reasons for an industrial revolution. Regardless of what else industrial life brings in its wake, the fact of more goods and less work appears to be an irresistible inducement for men to revolutionize their lives. And on the whole it seems worth it. Natural catastrophes can often be avoided; the environment can be reshaped; new desires can be awakened and many of them satisfied; persons can move about with more security and comfort; and not least, the working classes can enjoy many of the formerly denied goods that were the privilege of the upper classes; for example, artificial light, heat, and to some degree, sanitation, entertainment, and various other public benefits. In the course of industrial development the catastrophes have very much shifted from natural ones to man-made ones. The new catastrophes are not to be slighted—slums, artificial depredations, devastation and pollution of natural resources, and worst of all, full-scale war. Yet such catastrophes do not hold the same kind of inevitability; since they are made by man, many, if not all, may also be unmade.

There really is not much point in debating whether the

* It is estimated that from 1900–1950, leisure time has increased three to four times. Cf. the insightful discussion of James C. Charlesworth, "A Comprehensive Plan for the Wise Use of Leisure" in *Leisure in America: Blessing or Curse*, Monograph 4, American Academy of Political and Social Science (Philadelphia, 1964). Charlesworth observes that "the wise use of leisure is genuine education and its own reason for being," p. 35.

conversion to industrial society should have come about. As we have generously reiterated, the industrial system now predominates in much of the world and underdeveloped areas are seeking to industrialize as rapidly as possible. The more interesting question, once the conversion has been made, is whether man can make out of it a genuine culture, more satisfying than dissatisfying to the peoples of the world, and less given to the catastrophes that plague man today? I suggest that to do so, the industrial revolution needs to be completed by the political, social, and cultural revolutions, which are their complements. These revolutions—or more accurately and appropriately, these evolutions—have already, somewhat incompletely, come about. At least they have sufficiently done so that we can observe the kind of leisure they allow and estimate their further potential.

Concentrated as it is in urban areas, modern industry has transformed agricultural society into mass society. Moreover, mass society has a kind of coherence by which it can be recognized, especially in the standards of conformity it imposes upon its people at work and at play, in politics and religion, in their attitudes towards nature and other men. Older traditions and cultural elites, though they persist, become anachronisms and lose their power. There are, to be sure, variations in patterns, but the dynamics of the system appear increasingly to be reducing them to similarities. One student of the subject who would have us mindful of the range of variations that exists nevertheless believes that there certainly is a kind of inner consistency in values and beliefs and behavior patterns. He makes certain assumptions about this kind of society, no doubt with more than a casual amount of empirical knowledge, which suggests that they contain a measure of reality. For this reason, I believe that they are worth quoting. His assumptions about the "mass" character of modern society are:

> (1) social differentiation persists, even increases; (2) cultural uniformity also grows; (3) in rich countries there is more independent variation of social structure and culture than in poor ones, although some of this incongruity is due to imprecise measures of structure; (4) developments in the aesthetic-recreational sphere as well as the political sphere may remain isolated from those in the economy and locality for some time, so that in the short run mass behavior in one sphere may not become mass behavior in another; but (5) over several generations, and as rich countries grow richer, there is a strain toward consistency between structure and culture and between behavior in one institutional sphere and that in a second.*

For our purposes, the most important consideration is the fact that mass society develops its own character, and that inherent in it is its own kind (or kinds) of leisure. Professor Wilensky finds this kind of leisure increasingly inconsistent with the elitist leisure of earlier society. His own concern is to show how free time spent on mass communications—especially TV—breaks through the more traditional divisions of society. No doubt his conclusion is warranted, and I shall turn to the question of mass communications after considering some further characteristics of mass society.

First, there is the changing political pattern of mass society. Mass society surely does give an assist to the political leveling of modern society. The franchise and the popular vote have come to be an aspect of industrial society. Although there are many ways of manipulating votes and many ways of nullifying their effect, there exists nevertheless an important consider-

* Harold L. Wilensky, "Mass Society and Mass Culture: Interpendence or Independence," *American Sociological Review*, XXIX, No. 2 (April, 1964), 176.

ation in that politicians have to take into account popular sentiments. These may be crudely overrun, as in totalitarian societies, or they may be more subtly controlled by public relations techniques, as in less completely totalitarian societies, or they may even respond to public sentiment, and possibly even to sentiment that is informed and that has some clear notions about the ends to be instituted. In other words, the ideal of equality may still be an end that merits pursuit.

Equality as an ideal of mass society, it is worth observing, becomes a reality only when it gets truly expressed in the lives of the masses. Clearly it can do so only if there is a legitimate sense in which it appeals to a sense of the solidarity of mankind. This is, of course, the fraternal ideal. It means that what happens in Kenya or South Africa or Bylorussia or Mississippi is of concern to all men. A Universal Declaration of the Rights of Man is a political necessity because it is a moral necessity in a world dominated by industrial technology. To flaunt this necessity is to court disaster in human affairs and to cause more unrest than can possibly be caused by respecting the necessity.

Finally, because of the social structures characteristic of this kind of society, it becomes imperative to redefine liberty concretely in relation to the realities of the social world, rather than as a psychological phenomenon that bears no relevance to what men actually do or can do within the limits of an industrial, mass complex. Thus the liberty to do whatever one chooses is a notion less acceptable than the enhancement of conditions that help men to do what is to their likings when they can exist as viable choices. Under these circumstances the island-theory of mankind needs to give way to the bell-theory, not for the tolling of mankind but for the celebration of him. Men's freedom will then come to its most adequate expression in their leisure time, for industrial man has a right to claim such time as the longest part of his waking life and as that in

which he can be most human. Leisure then is not to be regarded primarily as relaxation or diversion or any other attribute which is an escape from monotony or burdensome work. Rather it is to be regarded as fulfilment of such capacities as may be open to men in their non-invidious world. Aimlessness or the happy hour need not be excluded in such a world. No doubt they will exist, and they can even be justified by the fact that they are a requirement of leisure to insure the vocation of man; that is, the celebration of him. Such a celebration is not a matter of ritual, even though it may contain ritual, but a matter of works, of human doings where doings are an expression of his best knowledge and of his most acute sensibilities.

Work and Leisure

It is axiomatic that leisure is connected with work. Yet as the character of work changes, so does leisure. Moreover, since the more insistent factor is work rather than leisure, we shall do well to note the categories of work before proceeding to further discussion of leisure. Santayana's categorization of work * appears as useful as any other: want, ambition, and love of occupation. The last named we can easily dismiss with a brief comment, since it exists more as the solution of a problem than as the setting of one. Unless it is socially repugnant, such as mayhem or public relations or other like forms of sadism, the professional who loves his occupation is in an enviable position. He is almost certain to reach high standards of professional development, as well as enjoying a sense of mature achievement that will sustain him in the more tedious require-

* Quoted by Nels Anderson, *Work and Leisure* (New York: Free Press of Glencoe, 1961), p. 27.

ments of his chosen work. His "instinct for workmanship" can certainly carry him far towards the realization of satisfactory ends. Yet however successful such a man may be in his occupation, he cannot well avoid the turmoil involved in coming to terms with his extra-professional, personal involvements as well as with an inevitable concern for his larger cultural involvements. If he can manage his personal affairs, such a man is likely to make a genuine contribution to culture and to be a competent critic of it, especially as regarded from his professional point of view.

The more serious dislocations of both work and leisure and their interconnections are better seen in the other two categories: those who suffer from ambition or from want. The man of ambition often performs extraordinarily useful services. But he is not quite to be trusted because his judgment is easily clouded by "vaulting ambition." Institutionally speaking, the ambitious man may find his ambitions best satisfied in the business world, especially as profits are virtually unlimited and as the man of business is both highly respected and occupies a position of power. No doubt the age of captains of business is past, but there are nevertheless attractive rewards open for those with executive ability and for those with talent for financial manipulation. Certainly not all who enter these fields are philistines, but it is not unfair to suggest that the nature of the occupations is, in the higher ranks, such as to favor philistinism. In the lower ranks in these fields there is evidence that men in business have tempered their ambitions and seek release for their energies in other personal involvements, sometimes extending into larger social and belle lettrist affairs. But the evidence suggests that they are more likely to be intelligent appreciators of the good life than those who actively shape it.

The truly agonizing problem of work is found in situations in which those who engage in it do so from want. The factory

system, including the assembly-line monotony it imposes on men and women, is, as we have already suggested, the stigma of the industrial world. However much it has been alleviated by shortened hours, improved conditions of work, and increased rewards, it remains nevertheless an inhuman burden, even if an inescapable one, as accumulated empirical evidence clearly shows.* From a more theoretical point of view, the indictment is made by Nels Anderson as follows:

> When rationalized, work emerges as naked performance detached from whatever is not pertinent. The work place has been detached from the home and separated from non-work distractions. Skill has been separated from the worker and converted into a uniform predictable work quality. All activities and interests having a leisure content have been separated from work.
> Finally, work is now separated from the personality of the worker or, better said, it makes few demands on his personality, which finds expression in leisure.†

It seems highly unlikely that this statement is over-critical of the predicament of those who work because of want. Surely only a handful would choose to do such work except for the external rewards it brings. Even if the rewards are increased to staggering proportions, ‡ the problem of creating a satisfying

* For an intelligent and detailed indictment of the contemporary industrial system, see again Chris Argyris, *Personality and Organization*, especially pp. 232–35.

† *Dimensions of Work* (New York: David McKay Co., 1964), p. viii.

‡ Charles K. Brightbill, quoting George Soule, writes that "if the gain in *real* income continues for another 80 years as it has for the last 80, the average income (in the U.S.A.) at that time will be $37,500." *The Challenge of Leisure* (Englewood Cliffs, N.J.: Prentice-Hall, 1963), p. 17.

relation between work and leisure remains unsolved. Despite its unsettling conflicts, the compromise may nevertheless be required in order to permit an industrial society to continue to exist. Constituted as the least evil available, the compromise may still permit some major increment of satisfaction if the conditions of work are not permitted to dictate the institutionalization of leisure. If it does, the chances are that leisure will continue to be constituted as bread and circuses, with all its sensual accompaniments.*

There is reason to believe that as industrial societies advance in the twentieth century the social gap between factory workers and others tends to decrease. There are still rich and poor, and, at the extremes, the vocabularies differ so greatly as to make communication impossible. Otherwise, the media of mass communication and the schools do, for better or for worse, mould society in its attitudes, values, and use of leisure time. From the point of view of the advancement of organized intelligence, it seems likely that the problem of leisure is more serious than that of work, even though the two are intertwined.

Irresponsible and Consummatory Leisure

The quality of leisure in a society is the final mark of the quality of its culture. The degree of authenticity of a culture is the degree of consummation which its leisure provides. Since consummatory values, however, cannot be measured apart from work, the tedium of work in industrial society remains as its

* I pass over the touchy question of those who out of want seek work but do not find it. This is a different social question; yet it exacerbates the problem and makes even more difficult a satisfactory institutionalization of leisure.

most pressing paradox. The reason for this paradox is found in the fact that tedium brutalizes man and thus denies to him the enjoyment of consummatory values. As a substitute he can enjoy at best sentimental values—dream-like diversions that are as far removed from work as the shadow from the tree. The sentimentalities of leisure are a function of the brutalities of work. Institutionally speaking, sentimentality may be regarded as the discordance between work and leisure. Work, of course, is not bad because it is fatiguing—almost everything but sleep is. The trouble arises when it fatigues without providing a sense of accomplishment and therefore without satisfaction. Nor is leisure good just because it is relaxing. Relaxation is a necessary release from the tedium of work, but apart from work it is more an expression of boredom than an intrinsic end. At its most consummatory, leisure is a supplement to work and completion of it. As Pieper, following Aristotle, expresses it, the notion of leisure "is the source of the distinction between the *artes liberales* and the *artes serviles*, the liberal arts and the servile work . . . [the two] are twin expressions, and form, one might say, the articulation of a joint, so that one is hardly intelligible without the other. . . ." * We have elaborated this view at length in discussing the liberal arts as liberalizing the practical arts. The question is, what are the current forms of mass leisure and do they serve to make work more intelligible?

Discussing the character of leisure in America, Professor Wilensky writes:

> We must first grasp the fact that the mass media are the core of American leisure and that television has become

* *Op. cit.*, pp. 27–28.

> the core of media exposure. The sheer arithmetic is striking. Nine in ten American homes average five to six hours daily with the TV set on. And it is not just turned on; it is generally being watched. Eight in ten Americans spend at least four hours a day viewing television, listening to radio, or both. Additional time goes to reading newspapers and magazines.*

Clearly, television has found a viewing audience that is devoted to it. The rapidity with which Americans insist upon having their broken sets repaired is a clue to the intensity of their interest in television.† Leisure time spent in viewing television appears to be the dominant moulding force upon attitudes and sentiments of Americans, despite the many intangibles involved. The analysts of the phenomena suggest that the programs generally cater to a low level, artistically and intellectually, and that the so-called high brow programs receive low viewing ratings. Television, it appears, is to be regarded first as entertainment, and only secondly or thirdly as informative and educational. Sociological studies bear out this conclusion, and the evidence points to the fact that there is a high degree of conformity such that the educated classes, too, become part of the mass, and are addicted to much the same

* *Loc. cit.*, *American Sociological Review*, XXIX, No. 2 (April, 1964), 181. Wilensky takes his figures from G. A. Steiner, *The People Look at Television* (New York: Alfred H. Knopf, 1963). This volume should be consulted for a study in depth of American habits of viewing television, the kinds of programs viewed, the number of hours, and the kinds of viewers. It provides a thoroughly documented exposition of the magnitude of the problem, including the tastes and the depths of attachment to TV by the vast majority of the public from all ranks and classes.

† Cf. Steiner, *ibid*, pp. 99–100.

programs as the less well educated.* There is no need to labor the question of whether the run of detective stories, soap operas, and Westerns, together with the interspersed advertisings and announcements constitute consummatory values. They obviously do have consumers, more as the listless variety than as active participants. They sentimentalize and bowdlerize. How close they come to serving the "interest, convenience, and necessity" of the people—the standard set for radio and TV by law—may be regarded by some as debatable. No doubt, there are programs that do measure up to standard: the lively programs on educational TV, coverage of dramatic news developments, especially those of national and world-wide interest, special programs of historical subjects, as well as a significant number of other programs done with honesty and intelligence. Even so, the bulk of the programs can only be regarded as distractions from the vocation of man, which serve at best for entertainment and at worst as substitutes for ennui.

The predicament reflects a malady at the core of industrial society, and we can, I think, locate its source. Leisure is not the cause of the sickness, but a symptom of it, even if it does aggravate the disease. The cause is to be sought in the "practical arts" themselves. In an industrial society these arts have become so disturbed that they serve ends out of proportion to the needs of an authentic culture. Not unreasonably, men react, often frantically, to enjoy the moment, entirely separated from that which has led them to seek momentary relief. The

* Cf. Wilensky, *loc. cit.*, pp. 178–80, 190, 191, 196. For example, "There is little doubt . . . that educated strata—even products of graduate and professional schools—are becoming full participants in mass culture; they spend a reduced fraction of time in exposure to quality print and film. This trend extends to professors, writers, artists, scientists—the keepers of high culture themselves—and the chief culprit, again, is TV (p. 190).

protest can take a great variety of forms, and entertainment is one of the most important. Entertainment, of course, is not therefore unjustifiable. It is an aspect of play and art, of creating and judging, of the intellect and the emotions, and can be a quality of almost anything human except piety and agony and gross human suffering. Even enjoyment as relaxation is easily and properly justified. But the conversion of enjoyment as relaxation into the principal end of life is a distortion that will not do: it is a trivialization of life, and as such drains its realities.

Criticism of modern life is implicit in the form that mass leisure assumes, but it is found in other forms as well, some serious and some playful. Modern literature abounds in this criticism—that of Beckett, Bellow, Ionesco, Gold, Barth, Gelber, and a host of others. Existentialist writers often make it explicit. Moreover, it may be argued that the arts in seizing upon formalism, the new geometricism and pop arts are half-articulate, burlesqued criticisms of the trivialization of culture by modern industry. In addition, beatniks express their revolt by avoiding as much as possible not only the discipline imposed by work in industrial society but also the conformities demanded by mass leisure. Finally, refusal in general of philosophers, with the possible exception of existentialists, to come to terms with the predicament is abdication of an intellectually responsible position in relation to the predicament.

To resolve the predicament, nothing will satisfy short of a wholesale attack upon the specious aspects of industrial society for the purpose of converting that society into a genuine culture. I shall suggest three points of attack and then call attention to the task of philosophy in providing further guidance for the development of a genuine culture. The three points are: first, a reconsideration of the standards of the practical arts; second, directions for transforming the arts and

the public forum; and finally, a heightened sense for the meaning of peace for the last third of the twentieth century.

Defective Standards of the Arts

The practical arts were never intended as an exercise in busywork. They were never intended, except by some nineteenth-century devotees of "the dismal science," to keep people out of mischief. And they were never intended, except by some twentieth-century economists who are wedded to a technique of avoiding some paradoxes of capitalism, to insist upon an ever-increasing rate of consumption in order to make the world safe for production. *The* problem of the practical arts is indeed made difficult in the twentieth-century in that, at least in America, we have carried over from the nineteenth-century an ideology that was grounded in job-shop enterprise and attempted to apply it to oligopolistic, twentieth-century, big business. The error is threefold: it enthrones irrational choices; it covertly shifts power from the consumer to the producer; and it fails intelligently to employ modern technology as a significant ingredient in the realization of consummatory values. The error traces to the fact that there is little semblance between a system in which, prior to the technological revolution as a result of the new science, intelligent choices of goods were made upon the basis of common-sense experience and a system, following that revolution, in which intelligent choices of goods could be made only by an appeal to technical standards. Hence, in the absence of technical knowledge, persons cannot possibly choose intelligently and are at the mercy of winds of doctrine that they cannot understand.

Little wonder is it then that we are confronted with the

paradox of a society which, while it contains in the aggregate more knowledge than mankind has ever possessed, at the same time displays greater irrationality than ever before. From this paradox arises an indictment of the "practical arts." The question is whether this indictment is a "true bill?" In primitive societies there is little doubt that rabbit-snaring and pottery-making and growing maize, etc., are practical arts. They remain such even when they are overlaid with rituals that are supposed to expedite results; because, it seems, ritual was usually secondary except in the doubtful arts, such as those of healing. In contemporary society, ritual, in the form of ideology and in that deriving from vested interests, especially when it takes advantage of ignorant people, aborts the arts of an affluent society. Men are "required" to produce goods or to produce them in a way which has questionable worth. Such goods may be luxuries not commensurate with the bother, or they may be manufactured with built-in obsolescences in order to guarantee the future need of production. Irresponsibility is a thoroughgoing character of the system. And the leisure which attends it is equally as irresponsible as the work which produces it. The result is a compounded loss of consummatory values involving both useless work and trivial enjoyments. To paraphrase Dewey, the means of the production are collective and communal but the ends are individualistic and divisive.*

* Cf. *Individualism, Old and New* (New York: Minton, Balch, 1930). Dewey's actual words are worth quoting. Addressing himself to the fact that the business mind is not unified, he asserts: "It is divided within itself and must remain so as long as the results of industry as the determining force in life are corporate and collective while its animating motives and compensations are so unmitigatedly private. A unified mind, even of the business type, can come into being only when conscious intent and consummation are in harmony with consequences actually effected. This statement expresses conditions so psychologically assured that it may be termed a law of mental integrity" (p. 58).

Transforming the Arts and the Public Forum

The system of production and the means of choosing goods, along with the consequent inordinate amount of time spent on amusements and entertainments (despite or in the face of inner agonies), are seriously defective. There are, nevertheless, clearly contrary and authentically productive elements within the system, together with some genuinely consummatory values. The question is how to overcome the obfuscations and distractions that prevent the further development of these values? Except in emergencies, the forces that block legitimate values may not be capable of being overcome, and we may be reduced to admitting the prevalence of irrationality as an unalterable fact. Yet, a more searching look reveals some hopeful instrumentalities for making the productive arts more functional.

In order to redirect the arts, one may turn the spotlight on those genuinely creative movements that are capable of becoming guideposts to even further civilizing processes. Chief among these may very well be the rational development of communities. One such exciting development is that of Reston, a planned new town, some 18 miles west of Washington, D.C., in a wooded Virginia hillside. The new town, composed of a number of villages and urban town center is intended to accommodate 75,000 persons. Scenery and artificial landscaping are not to be sacrificed to an overemphasis upon conveniences of parking cars. The pedestrian is to be favored; and ambiance is to be made more human by eliminating "dead space" that separates houses in favor of "live space" that is usable for walking, picnicking, playing, congregating, etc. The community is intended to house rich and poor persons, those of different colors, and those capable of expressing a wide

range of interests. It is intended to combine work and leisure, especially communal leisure, where the town square, in easy walking distance, is to be a center of charm as well as one for the performing arts. Finally the industrial area is to be close at hand, and thus to minimize the problem of transportation and commuting.* The experiment† may fail, but similar experiments in Europe, notably in Finland, have not. It would be absurd to suggest that Restons are the answer to contemporary problems, but it is not absurd to suggest their advantage over tract housing, and the ways in which they can alleviate rather than intensify present-day, social dislocations. And they can be especially instructive in providing us with a new sense of a proper relation of work and leisure, of the private to the public, the practical to the artistic, the realistic to the idealistic, and of the correction of many more of those tortuous dislocations that debilitate human excellence.

The Restons, and other promising innovations, such as conservation and educational and health programs, slum clearance, automation of industry, new experiments in the communal arts that dignify athletics and the dance, speech and discussion, dissemination of knowledge, and whatever else assists in making men at home in the world—these are the innovations that need to be spotlighted and discussed. This need cannot be satisfied unless there are new forums appropriate to the modern task. The school, including the college and university, can be and are central to the task, for they are basic institutions of intelligence and of the advancement of the arts.

* For a detailed discussion of the many facets of the project, see Wolf Von Eckardt's insightful discussion, "The Community: Could This Be Our Town," *New Republic*, CLI, No. 19 (Nov. 7, 1964), 17–23.

† Apparently it has failed. See Von Eckardt's later report, "Are We Being En-Gulfed?" *New Republic*, CLVII, No. 24 (Dec. 9, 1967), 21–23.

But there are others as well: community forums that are suited to the task; for, as community centers, they provide the grass roots from which vigorous and fresh opinions can arise and be defended. Then there is the question of employing the most powerful medium of all for engaging in the process: TV. Whether this is possible is hard to say. England may have a better beginning in this regard than America. But as a new agora for public discussion and medium of dissemination of things required for the "interest, convenience and necessity" of the people, television could, if the people were to insist, become the most significant public forum of all, aiding in the restoration of the sense of rationality for contemporary man. The quality of television of the future will no doubt prove to be the crucial test of the quality of leisure man will enjoy.

Peacefare

Finally, there is a mentality that must prevail if the arts are ever to arrive at anything like their full human potential: and that mentality demands peace. In a sense, this demand is redundant, for peace is the reign of the peaceful arts; it is what we previously called "peacefare." In outline, the requirement is simple; in detail it is one of the most tangled of all. The paradox is, of course, that nations "desire" peace most of all and they make as their first priority "the fight for peace." From our vantage point there are two comments called for, one pertaining to the elimination of warfare and the other to the advancement of the peaceful arts. The rest is the work of peoples who wish to convert from war to peace, from the death-wish to life, or from a spurious culture to a genuine one. Taking the genuine culture as our clue, our comments focus upon institutional structures as relevant to war and peace.

There is only one sure way of eliminating war and that is to eliminate the institution of war. Once this is done, nations have no capacity for warfare and are therefore unable to make war, no matter what.* Once armies are dismembered and armaments destroyed, the mentality for warfare which remains is reduced to the power only of a wistful reminiscence. And even this power can be expected to die a quiet death without the need of mass psychotherapy or of any other therapy. The resulting impotence is the end of warfare. Moreover, if peaceful instruments capable of widespread destruction have a function in society, their employment for the distorted purpose of trying to make war could issue only into acts of sporadic madness; certainly not into a state of totally destructive warfare, such as is now capable of being waged. Madness of this sort is always possible, but its containment is of an entirely different order from that of the destructive power of atomic warfare, plus all its supporting forms.†

If war is to be eliminated, peace must be enthroned. This has been the major theme of this essay. Peace is not just the absence of warfare; it is the practice of the human arts that are necessary, useful, and liberative. They are, in a word, moral. Warfare is immoral because it makes impossible "right relations among men"; it destroys the creative potential of men, including much of human well-being that relies upon communication. Consequently, the loss that warfare makes inevitable is

* Professor Robert MacIver first enlightened me on this point. See his *Web of Government* (New York: Macmillan, 1947).

† There is a similar kind of problem in modern society in the struggle throughout the world for civil rights. I pass it over with, again, only the suggestion that it, too, is a matter of converting institutions of segregation (laws, poll taxes, ghettos, employment bureaus, etc.) into those of integration. In many ways the problem is more difficult than that of eliminating war, because of the intimacies involved in the relation of minorities to majorities.

compounded: the creative potential of men, as well as its dissemination and therefore such further realizations that dissemination would have stimulated. Behind the creative potential and its concomitants stand institutions of intelligence; without them a culture possesses little enlightenment.

Conclusion

Intelligence is inference, the drawing of proper conclusions; and it can be done only by individuals. How then can inference be a function of institutions, and how can there possibly be institutions of intelligence? One answer is that the agents of an institution are individuals. Another answer is that an institution may be so founded as to promote the activity of drawing conclusions by its agents. Taken together, the two answers have been implicit in the arts and sciences such as I have regarded them as being the bearers of intelligence in an authentic culture. By making them more explicit, I hope now to clarify the course of the preceding discussion and to make the ties among the various topics more evident. To this end, I shall make my final comments on intelligence as it may be embodied first in the arts, and secondly in science and technology; then I shall briefly restate the conclusions by which these institutions of intelligence make their contributions to authentic culture.

Inference in the Arts

The practical arts are functional. They serve to sustain life by making things and providing services. The life-functions they fulfill, we have said, include necessities, comforts, and elegances. These arts, then, are complexes of means to ends, which are capable of being rationalized. Their rationalization is illustrated in their employment of fire, the horse, the stirrup, iron, steam, the gasoline motor, the hydroelectric turbine, ad indefinitum. It turns out that these instrumentalities may be employed not only for co-operative work but also for co-operative enjoyments, whether for festivals or recreation or other such satisfactions. Regardless of the end to be served, intelligence comes into play in the nice adjustment by which the instrumentalities serve their appropriate ends. Analysis of how the ends come about reveals that inferences are always included in the process, even if only implicitly. Knowledge *of* the process discloses a knowledge *that* such and such will follow (or better, is likely to follow) upon the establishment of certain antecedent conditions. To know the art of welding is to know for example that the application of heat will cause certain kinds of metal to fuse. Inference consists in drawing just such conclusions. The more complex the art, the more complex are the inferences to be made, the last inference being dependent upon a series of preceding inferences. When reasoning of this sort is displayed in the conduct of an art, we usually call it prudence. And when the arts are capable of maintaining themselves and of serving functional ends, they are pre-eminently prudential arts.

Moreover, prudential arts, as we have noted, are capable of being passed on from generation to generation. Through apprenticeship, the novice is usually capable of learning an art.

In part his activity consists of practice of manipulative skills, but in part it is also intellectual in that it is learning how to draw appropriate conclusions. The novice is required not merely to have dexterity, but also to learn to know what will happen *if*. . . . Or, should he possess a more experimental mentality, he will more ingeniously have an idea, what would happen if. . . . In this case the inference is from one form of manipulation whose consequences are already known to another which are not. In the first case, learning is by dissemination of knowledge; in the second, by experimentation. The processes are of course similar; but the one perpetuates something already known; the other, seen from the novice's point of view, is inventive, whether or not the invention has already become a part of the accumulated knowledge of a society. When this kind of inventive thinking becomes an established pattern in a society, it then properly becomes an institution of intelligence. If, however, they are very simple and easily discovered by almost anyone who has need of them, they may just as well be called common sense. Yet it is probably true that even common sense is more a function of the mores and culture of a society than of purely individual invention. Surely the common sense which is expected of an Eskimo or a Chuckchee or an Australian aborigine is very different from that expected of a Frenchman or American or an Englishman. The very notion of common sense as something to be shared predisposes it to be cultural rather than individual.

Inference as Individual Act

Yet the individual is always to be reckoned with whenever an inference is made. Inference is so bound up with first-hand experience that without that experience, it is inconceivable

that any conclusion would ever be drawn. In the life of the mind, inference surely arises from observation of one thing's happening after another, whether it is burning a finger on a hot coal, hearing a clap of thunder following a flash of lightning, crawling to reach and then thrusting a cookie or a marble in the mouth, etc. Sequence of events precedes the sequence of inferring, though we may rightly have more confidence in the truth of inference than in that of the events which precede inference. The reason of course is that the senses may—and often do—deceive. Illusions and misperceptions are too common for one long to doubt this. Of course, inferences may also deceive, but they deceive in a different way and are corrigible in a different way. Clouds mean rain, but not always. Some clouds bring rain and some don't. To find out which do and which don't, I need to discern new factors, probably not discernible by gross sense experience. So it may be that the less I rely upon sense experience the better capable I am of making good inferences. And so there comes to be discovered an order of reliability in inferences.

The most ready of inferences I probably make by noting recurring sequences. The first red berry I chucked into my mouth tasted good, and the second and the third, etc. My inference, explicit or implicit, is that red berries taste good. I remember that this is so. Remembering itself then proves to be a kind of inference, an implicit one. If it is explicit, then it is not the sight of the red berry that prompts me to infer 'good taste' but the idea become symbol that so prompts me. Eventually, I come across a choke cherry. Then not only is my experience different, but, more importantly, the inference I make needs to be different.

The process is much the same as that in the practice of the prudential arts. The chief difference of course is that the novice learns not just from first-hand experience, but also from

that of his teacher, and possibly from others, directly or indirectly, who are privy to relevant experience. The teaching of an art is no doubt facilitated by the use of tools and of accumulated ideas. Tools and accumulated ideas are of course hallmarks of the existence of institutions. Tools especially are in fact the visible symbols of the existence of institutions of intelligence, and accumulated ideas are no less institutionally embodied. Some of these institutions are very complex, some fairly simple. Moreover, there is probably an order of importance of them in a given society at a given time, such at least that some are dominant and others subordinate in their effects upon how the members of a society act and think and feel.

Inference may be characterized in two quite different ways: from the "given" to the "not given" or contrarily from the "not given" to the "given." The first is characteristic of the experience of berries and the expectation of good taste, where the taste is inferred from the sight of the berry. In a much more complicated form, it is also characteristic of the prudential or practical arts, where known and proven ways of doing things can be counted on to achieve certain results, even though surprises may be in store for its practitioners, just as surprises may be in store for the taster of red berries. The other kind of inference, that from the "not given" to the "given," marks a more radical kind of intelligence, namely, that displayed in science.

Inference in Science

Science possesses two characteristics that distinguish it from the practical arts. It relies upon hypotheses and it exploits experimentation. First, about hypotheses. In advanced science,

they are not really of the sort "If red berry, then good taste." But rather, "If a string vibrates in certain proportions, then the octave or fifth or third, etc." Red berries happen; the vibrating proportions have to be looked for, and even that in a peculiar way, because the proportions are arithmetical; they are already 'ideas' for which only later is the scientist able to provide them with a local habitation. In advanced science, ideas are invented to account for the things of sense, and they are very different from the things of sense—for example, as different as the atom or the ether or gravity or the cell or the gene. If such ideas are to be more than sheer inventions, then they rest upon some empirical foundation. That foundation, if discovered at all, may come only later and then possibly only tentatively. Mostly, ideas are the stuff of reason, partly by way of postulate, partly by way of inference from one or more propositions to another. The scientist much seeks after ways of interconnecting ideas such that they comprise a system. More than anything, it is a system of ideas that constitutes them as science. In fact, the aim of science is often taken to be an ideally pure system, such as may be found in mathematics or pure physics, or even pure economics. In the absence of a system of ideas, science would not be an institution of intelligence. Because of the system, science is constituted as a body of ideas that provides a common reference from which scientists may elaborate, prune, or alter the system in ways more elegant or more in keeping with nagging facts.

Pure science does not fare well without an empirical support, and this for two reasons, one pertaining primarily to truth, the other to institutional relevance. The matter of truth is easily explained. Pure theory loses a dimension—precisely the dimension of truth. There can always be alternative theories, whether in geometry, physics, biology, etc. As far as pure

theory is concerned, there is no good reason for adhering to one theory rather than another, as long as they are internally consistent. Only empirical considerations provide reasons for preferring one to another—namely that one theory better explains the persistent facts than another. The empirical question often arises by comparison of theories which may suggest a crucial experiment or series of experiments, which in turn may provide good reasons for adopting one and excluding the other. In this way, science is seen to be verificatory as well as hypothetical-deductive.

Inference as Experiment and as Technology

The verificatory phases of science result in experimental work and eventually in an institutional support. This result occurs because science in application, as experiment shows, is relevant to practical things, first, proximately, then productively. The proximate application is technology, important because it is two edged. On one side, it partakes of science in the dimension of truth. On the other, it partakes of life in the dimension of utility. When these two connections are established, technology or engineering becomes the essence of the institution of science, and operates as an institution of intelligence. On the utilitarian side, science gains support both from economics and politics; on the side of truth, it gains respect, however slowly, until only later it figures in the institutions of power as an element in culture to be preserved. We have already sufficiently noted how the marriage of truth and power contains institutional dangers capable of corrupting the whole enterprise.

Science today is seen to be a massive, co-operative venture

It still depends upon individual inferences, but not on any one individual, or even on any particular group, unless we say, tautologically, that that group is the group of scientists. Even so, the place of the individual is both elevated and depressed by automation, that is, by the computer. This fact has unquestionably altered the practice of science very much by opening up new opportunities and by making more prominent a division of labor in determining who does what. With the advent of the computer, science has become not less an activity involving inference. On the contrary, inference has become even more evidently established in science. And it has also become more evidently institutionalized. The big 6600 Computer is surely the visible symbol that the machine, first created by science, now has become a creator of science.

Inference is the heart of the institution of intelligence, but its economics derive from the problems that generated it and that get transformed in the process. The solution of problems, or better, the conversion of problems, acts as the stimulus to the perpetuation of an institution of intelligence. But in a superlative degree the institution of science is geared to the solution of problems, and the institution of science, more than any other, converts virtually every aspect of life in directions that bear the stamp of science upon it. Science, we have seen, for better or for worse leaves no part of life untouched whether war or peace, love or religion, or the whole industrial complex which is pre-eminent in utilitarian matters. Nor can educational institutions be exempt from its influence. Because of the centrality of science in contemporary society, the aims of education cannot be defined without taking science into account. A philosophy of education that does not cope with the primacy of science and its implications for the arts is unreal.

Education: Conserver, Liberator, Creator

The purposes of education in our times cannot be realized apart from institutions of intelligence. According to the theory we have advanced, education requires a learning of the arts and sciences, together with a healthy skepticism of them. More finely conceived, the tasks of modern education are impossibly complex: training the young into the ways of its culture, opening up new vistas, aiding them to meet the unforeseeable, stimulating them to be radically inventive. The demands, we noted, are paradoxical, because of the tug between the aims of the conserving of practices on the one side and of breaking through encrusted ways on the other. Yet the two may really be paradoxical, rather than in contradiction. If so, the mediating element is inference, because education is irrevocably concerned with articulate learning. When this learning is institutionally organized, as it is in the school, it may at its best properly be regarded as an institution of intelligence.

To advocate stages of education is risky, but inevitable. Emphases in them will surely vary with variations in culture, but no system of education can succeed which does not initiate the young into the sustaining arts of a society. I would caution once more that although we may recommend an order of the arts, we should bear in mind that at any stage they are complex and that we need constantly to respect the various facets of life and not starve essential impulses in an attempt to get along speedily with the learning of some particular skills. Since authentic educational practice leads a person more deeply into civic society, there is a constant in all such education, that is, the civic ideal.

This we noted to be the case even in the earliest education

of the child in the arts of personal involvement—the first stage of the child coming to know himself in coping with personal needs of feeding and hygiene, making some stab at communication in expressing wants and demands, performing some simple services, and in becoming sensitive and responsive to his immediate environment. The multiplicity of his needs is surely a commonplace known to those who have the responsibility of child care. Preschool would emphasize a new dimension—a movement from the personal to the less personal and more threatening environment in having to cope with his peers. The suggestion was made that the essential mediating activity is found in the involvement with manipulation of things. This kind of involvement is surely to be regarded as developing both personal and interpersonal dimensions through a more intimate knowledge of the ways of things. We would emphasize here that this sort of activity implicates the child's rudimentary ability to form concepts and draw inferences.

Although the idea of primary education was projected as initiation into a working knowledge of literacy and numeracy, these skills were not regarded as being contrary to, or even inhibitory of, the development of personal awareness and of interpersonal felicity. Literacy and numeracy were given prominence with a view to inculcating early in the child the kinds of information, skills, and especially an outlook appropriate to the unwavering commitment of contemporary society to science and technology. Without this outlook, no one can comfortably move about and effectively engage in civic affairs.

Higher education was likewise conceived as a fulfilment of the civic ideal, but with one difference. Its objective was regarded less as being one of personal fulfillment (which is not therefore at all irrelevant) than one of making authentic contributions to learning. We observed, however, the ambiguity of learning, which may turn either toward scholarship or toward

scientific advancement. Although the two are not easily reconciled, there are ways of mediating between them, as between the humanistic and scientific ideals.

Science can become less restricted and humanistic studies can be made more relevant with the advancement of the liberal arts of a society. The arts, containing the aesthetic, the religious, and the philosophic dimensions, engage the fullest powers and cater to the irrepressible demands of civic fulfillment. Finally, to show how these arts need to be more completely reconciled with the practical arts, we outlined a concept of leisure, not as relaxation, but as complementing man's practical commitments with the more complete liberation of the human spirit. Thus leisure not only furthers the play of concerted intelligence but also celebrates both its accomplishments and its prospects for new institutional involvements. So conceived, leisure becomes the conscience of society, the arts serving as its will. Together they constitute the examined culture which is worth having. The rest is unavoidable work, and relaxation, and love without wisdom.

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Finally, by taking into account the advantage of the genuine utilities inherent in science and technology as institutions of intelligence and by taking into account the possibility of liberating the intellect from the confines of pseudo-utilities inherent in old folkways, he assesses the prospects for an authentic culture and a new leisure consonant with human greatness.

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